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Best Wishes for the New Year

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PYELITIS IN PREGNANCY*

By NICHOLSON J. EASTMAN, M. D.
Baltimore, Maryland

Of the many medical and surgical conditions which complicate gestation, pyelitis is one of the most common, occurring in about 1.5 per cent of all pregnancies. Long recognized as the most frequent cause of fever in pregnant women, this condition has recently assumed increasing importance from a number of viewpoints. In the first place, it has become clear that pyelitis, when it occurs in pregnancy, is actually produced by certain structural and functional alterations which have long been regarded as physiologic in the gravid woman. Accordingly, pyelitis is not a mere incidental complication, such as heart disease or tuberculosis, but must be regarded as part and parcel of the pregnant state and in this respect resembles the anemias of pregnancy and even the toxemias. Secondly, urological studies in postpartum patients lay emphasis on the fact that upper urinary tract infection in pregnancy is an insidious complication with far-reaching latent effects since a third of these patients continue to harbor the infection long after delivery.

THE AUTHOR

Doctor Eastman of Johns Hopkins Hospital graduated Indiana University School of Medicine; member American Association of Obstetricians, Gynecologists and Abdominal Surgeons; American Gynecological Society; American Board of Obstetrics and Gynecology; Professor of Obstetrics, Johns Hopkins University School of Medicine.

Finally, the introduction of several new therapeutic agents, notably sulfanilamide and ammonium mandelate, has stirred new interest in the treatment of the condition.

We have made note of the fact that pyelitis, when it occurs in pregnancy, is the result of certain structural and functional alterations which are physiologic in the gravid woman. Among these, dilatation of the ureter and kidney pelvis is one of the most common changes associated with pregnancy. This dilatation is of marked degree, the diameter of the ureter in pregnancy measuring twice or even three times that found in the non-pregnant woman. The cause of the dilatation is two-fold: (1) relaxation of the ureteral

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musculature due to certain hormonal action; (2) pressure on the ureter at the pelvic brim by the enlarged uterus with partial obstruction to urinary flow from the kidneys.

Since any over-distended smooth muscle viscus quickly loses its peristaltic activity, we would expect the ureteral dilatation so constantly seen in pregnancy to be associated with some degree of atony. In general, this is true and commencing in the third month of pregnancy there is a diminished amplitude of the ureteral peristaltic wave. This diminution in tone becomes more marked as pregnancy advances and reaches its peak during the seventh and eighth months. At this time there is often complete loss of tone with absence of peristalsis. As a result of these alterations urinary stasis during pregnancy is the rule. In other words, the relaxed ureter in the pregnant woman is often unable to expel the urine excreted by the kidney and as pregnancy advances tends to contain an increasing column of more or less stagnant urine. It is needless to point out that this column of static urine is an excellent culture medium for bacterial growth and constitutes the chief reason for the predisposition which pregnant women show toward this disease.

CLINICAL ASPECTS OF PYELITIS IN PREGNANCY

The symptoms produced by urinary tract infection in pregnancy may vary considerably from those of the same disease in the non-pregnant state. Bladder symptoms may be entirely absent and usually are of minor importance. Hectic fever with chills, costovertebral angle tenderness, clumped white cells in the urine and colon bacillus bacteriuria are the main diagnostic signs. To be of diagnostic significance, the pyuria should exceed 50 white cells per highpower field and these should be in clumps—that is, group five or more agglutinated together. From a diagnostic view the only difficulty that arises occasionally is in differentiating pyelitis, which is usually right-sided from acute appendicitis. It is important to remember that appendicitis rarely strikes for the first time during pregnancy. If you are dealing with appendicitis in pregnancy, usually there is a history of previous attacks of the disease. In pyelitis the "spiking" temperature curve, the common occurrence of chills and the costovertebral angle tenderness are usually characteristic and the diagnosis ordinarily presents no great problem.

In postpartum pyelitis the diagnostic difficulties are greater. Here, there is the ever-present possibility that any manifestation of fever is due to uterine infection and the differentiation of these two conditions sometimes taxes the acumen of the most astute clinician. The type of the temperature curve, the presence or absence of costovertebral angle tenderness, the presence or absence of lower abdominal tenderness, the character of the uterine culture and the urinary findings will usually serve to establish the diagnosis. Because of diagnostic difficulties, apparently, there is lack of agreement concerning the relative frequency of the antepartum and postpartum variety of the disease. Traut believes that postpartum pyelitis is slightly more frequent than antepartum and holds that the former is frequently and erroneously described as uterine infection.

In women suffering from pyelitis the fetal mortality is at least twice that usually met. Abortion and premature birth account for most of these deaths. From a practical point of view this unfavorable outlook for the baby must be given due weight when considering therapeutic abortion in refractory cases.

TREATMENT

The variety of therapeutic methods which have been advocated for the treatment of pyelitis in pregnancy is evidence in itself that we lack any one established and successful form of therapy. Actual cure of pyelitis during pregnancy, indeed, is rarely possible since the atonic ureters with their content of static urine prove usually an insuperable handicap, and during this period all that can be hoped for is relief of the acute evidence of the disease. In general, therapy has two objectives: relief of stasis and urinary antisepsis. Forced water drinking serves both these ends and is

the most important single measure at our disposal both in the prophylaxis and in the treatment of the disease. Crabtree and Prather believe that they have reduced materially the incidence of pyelitis at the Boston Lying-In Hospital through emphasizing the importance of water drinking in prenatal care. Two glasses of water with each meal and the same at bedtime should be routine for every pregnant woman, and during warm weather an even larger intake is desirable. In the treatment of pyelitis the fluid intake should exceed 4500 c.c. daily (except when certain of the newer urinary antiseptics are used, a subject which will be discussed presently). The more important therapeutic measures used in the treatment of pyelitis are as follows:

UROTROPIN (Methenamine)

The value of methenamine as an urinary antiseptic has been a subject of question since the studies of Burnam, Hinman, Levy and Strauss, and others, more than twenty years ago. These investigations showed that after therapeutic doses of the drug the concentration of formaldehyde in the urine is rarely sufficient to be bactericidal even though the urine is very acid. It was further pointed out by Hinman that in the renal pelvis the drug was of no value for the reason that the urine does not remain there long enough to permit the conversion into formaldehyde. Finally, it was emphasized that methenamine therapy was quite worthless unless fluids were limited so that a high concentration of formaldehyde in the urine could be obtained. Despite these objections, this drug, which has been in wide use since 1895, is still probably the most popular urinary antiseptic and, as everybody knows, is usually combined with large quantities of water. The impression is rather general that the good results which have been attributed to this form of therapy are due not to the drug but to the water. Crabtree and Prather, nevertheless, employ it in subacute, ambulatory cases in doses of forty grains daily combined with twice this amount of acid sodium phosphate.

ALKALI THERAPY

Administration of alkali is a simple and effective means of treating most cases of pyelitis in pregnancy. Essential factors in the treatment are the production of a copious flow of urine and a markedly alkaline urine. Clinical experience shows that the optimum degree of alkalinity is a minimum of pH 7.6, that is, a degree of alkalinity slightly greater than the normal reaction of the blood. As the early morning sample of urine is usually the most acid of the twenty-four hours, it is sufficient in most cases to ensure that this specimen be of the required reaction. Osman emphasizes the fact that litmus paper should never be used for testing the reaction of the urine and recommends the following procedure. Two or three drops of a 0.1 per cent solution of bromthymol blue are added to about three c.c. of urine in an ordinary test tube and the resulting color observed. At a pH of 7.6 the color should be a distinct dark blue, but at reactions less alkaline than this, a greenish tint will become increasingly more evident. To attain this degree of alkalinity sodium bicarbonate, 15 to 30 grains, four times daily is usually employed, but Crabtree prefers potassium citrate in dosages of 60 to 80 grains a day. Since large doses of sodium bicarbonate tend to induce vomiting and since appreciable amounts of potassium citrate may cause diarrhea, it is recommended that the two salts be given together, each in slightly moderated dosage. In my experience this permits the administration of large amounts of alkali with a minimal likelihood of gastrointestinal disturbance.

CLINIC METHODS

A survey of the methods used in American obstetrical clinics indicates that alkali therapy, combined with a copious water intake, is the initial procedure usually employed. In 90 per cent of cases, perhaps, clinical improvement follows promptly and the asymptomatic (but still uncured patient) can be carried to term satisfactorily. If no improvement follows after five days, one of the following methods should be considered.

MANDELIC ACID

About six years ago Clark, and also Helmholz, showed that a special type of high fat, low carbohydrate diet produced a bacteriostatic urine through bringing about the excretion of beta-hydroxybutyric acid. Although clinical trial attested the efficacy of the method, the diet (about 40 per cent cream and eggs) proved generally repulsive to patients and in many instances marked gastrointestinal disturbances resulted. In 1933 Fuller and Colebrook treated fifty-four cases of puerperal pyelitis by means of a ketogenic diet with results that were not encouraging. In twenty-two cases they failed to produce even a moderate degree of ketosis. In 24 patients the urine became sterile but not until after 17 days of treatment. During pregnancy the deliberate production of ketosis would carry obvious hazards and the method is not recommended.

The foregoing experiences with the ketogenic diet, however, had important results in that they suggested the possibility of finding some substitute for the unpleasant diet. Beta-hydroxybutyric acid was found ineffectual when given by mouth, but its bactericidal powers were shown to be shared by allied acids and, in 1935, one of these, mandelic acid, was introduced by Rosenheim as a logical alternative. Mandelic acid is a simple hydroxy acid (C^6H^5 CHOH COOH) which resembles closely in chemical configuration beta-hydroxybutyric acid (CH^3 CHOH CH^2 COOH); it is nontoxic and is excreted unchanged in the urine which it renders bacteriostatic. The two objectives of the treatment are to obtain a sufficiently high concentration of the drug in a urine of high acidity. Helmholz and Osterberg have shown that in a concentration between 0.5 and 1.0 per cent and at a pH between 5.0 and 5.5, mandelic acid acts bactericidally on all the common gram-negative bacilli. Staphylococcus aureus and streptococcus fæcalis are affected similarly. Since in proteus infections it is impossible to reduce the pH of the urine appreciably, mandelic acid is almost useless in the treatment of these cases. Mandelic acid is now generally given in the form of the ammonium salt. If the urine does not reach the necessary pH of 5.5, ammonium chloride (two to four grams a day) can be given in addition. The mandelate is excreted in the urine almost quantitatively so that by knowing the amount given in twenty-four hours and the daily output of urine, the concentration of mandelic acid in the urine can be kept at approximately one per cent. The usual adult dosage is 12 grams a day, that is, three grams four times daily, taken after each meal and at bedtime. The twenty-four hour quantity of urine should be kept at about 1000 c.c. The reaction of the urine should be estimated by the use of methyl red, a few drops of which are added to some urine in a test tube. If the acidity is satisfactory, a pink color will be obtained; if too alkaline, the urine remains yellow or orange.

MORSON'S RESULTS

Morson has employed mandelic acid in ten cases of pyelitis complicating pregnancy. In seven the urine became normal after ten days of treatment. Two were failures and one patient discharged herself before termination of the treatment. In none of these cases was there evidence of damage to the kidneys from the acidity of the urine. One of the successful cases had been treated by alkali therapy six months previously, during the early stages of pregnancy, without result. On the basis of a very limited experience I can confirm Morson's impression that mandelic acid is often a satisfactory method of treating pyelitis complicating pregnancy. I noted in one case, however, that the carbon dioxide combining power of the blood, after a few days of treatment, fell to 29 volumes per cent. During pregnancy the carbon dioxide combining power of the blood is normally low (45 to 50 volumes per cent) and it would seem advisable to follow this blood chemical value carefully in pregnant women treated by this method. It should be emphasized again that all that can be hoped for during pregnancy is abatement of signs and symptoms; in none

of my cases treated with mandelic acid did the urine become and remain sterile. Although additional observations are necessary before this drug can be properly evaluated, it would seem worthy of further trial in certain cases in which alkalies have failed.

SULFANILAMIDE

Following the observations of Imhauser in 1935 that sulfanilamide produced favorable results in colon bacillus infections of the bladder and kidneys, Helmholz demonstrated that the urine of patients taking the drug develops definite bactericidal power for such organisms as are commonly found in infections of the urinary tract. It is apparently without effect on the streptococcus fæcalis. The urinary concentration of sulfanilamide necessary to produce bactericidal effects ranges from 50 to 250 mg. of the free drug per hundred c.c., depending on the type of organism and on the pH of the urine; its bactericidal power is markedly increased in alkaline urine. The dosage recommended by Cook and Buchtel is 30 grains (two gm.) the first day, 40 grains (2.6 gm.) the second day and 60 grains (four gm.) the third day, the dose being decreased on the fourth day to 40 grains. Walther prefers giving 1.2 gm. daily for two days and if this is well tolerated, he increases the dose to 2.4 gm. daily for two days. If necessary, and if the sulfanilamide is being taken without untoward effects, the drug can then be gradually increased until 4.8 gm. is reached. The above amounts of sulfanilamide are usually divided into four doses and given at four hour intervals with sodium bicarbonate, 10 grains. The purpose of the latter is to combat acidosis and ensure an alkaline urine which for optimum effects should approximate pH 7.5.

Kenny and her associates have reported the results of treatment with sulfanilamide in 46 cases of colon bacillus pyelitis which occurred during pregnancy and the puerperium as well as before and after gynecologic operations. The preparation was administered orally in 0.5 or 0.6 gm. doses three times a day, *i. e.*, 1.8 grams for five to seven days. No other treatment was employed, nor was there any restriction of diet or fluids. In the sixteen patients with pyelitis of pregnancy the drug appeared to bring about a rapid remission of symptoms and sterilization of urine. Five of the gravidæ had albuminuria or other signs of preeclamptic toxemia before treatment was instituted for pyelitis, but in none was the condition aggravated in any way. Six women had recurrence of bacteriuria during pregnancy at varying intervals after treatment. Seventeen patients with colon bacillus infections of the urinary tract and pyrexia of the puerperium (with or without pathogenic organisms in the genital tract) responded as rapidly and as completely as in pregnancy. In every case the symptoms abated in two or three days and the urine became sterile and free from pus in an average of three days. At the time of the report three months later, the authors had seen only one patient with clinical and bacteriologic relapse, and she was relieved rapidly by a repetition of the same therapy. The nine patients with preoperative and postoperative urinary infections were rendered free from infection and dysuria in about three days.

FETUS NOT HARMED

In a study which will be published shortly, Speert, of my clinic, has found that sulfanilamide passes readily through the human placenta and within four hours after administration assumes equal concentrations in fetal and maternal bloods. This means that when the drug is given to the mother, the fetus in utero receives, per unit of body weight, the same dosage; and the question naturally arises: is the infant harmed? In my clinic, where Speert's work was done, it has been customary for special reasons to employ larger doses of sulfanilamide in the treatment of pyelitis than those mentioned above; namely, 4.8 gm. daily. In Speert's experimental study approximately 5.0 gm. was given as a single dose during labor. Altogether some forty pregnant women have been

given such dosages and in no instance have we noticed any untoward effect upon the baby. While further observations are needed, these findings suggest that with the lower dosages recommended above, this form of therapy is safe for the infant.

Sulfanilamide is the drug of the moment in urinary antisepsis and will doubtless continue to hold an important place in the treatment of pyelitis in pregnancy. As is well known, however, it occasionally produces toxic effects and accordingly it would seem judicious to resort to it only when alkalies have failed, only when the hemoglobin and white cell count can be carefully watched and only in the doses recommended.

DRAINAGE AND LAVAGE OF THE RENAL PELVIS

Many refractory cases of pyelitis in pregnancy, which a few years ago would have necessitated drainage and lavage of the kidney pelvis, are treated successfully today by means of one of the two drugs just discussed. While ureteral catheterization is being used less than formerly, therefore, it is advised by urologists in occasional cases which have proved resistant to other forms of treatment. The procedure, as practiced by Crabtree and Prather, consists of draining the renal pelvis by means of ureteral catheters, washing them clear of pus with boric solution, allowing them to drain empty for fifteen or twenty minutes and instilling three to five c.c. of one per cent silver nitrate. The use of the indwelling catheter is not recommended. It is very uncomfortable for the patient, who, moreover, becomes worse sometimes rather than better after its removal, and occasionally it seems to stimulate labor pains.

PITUITARY EXTRACT

The use of pituitary extract in pyelitis has been recommended by Miller and by Ginsberg as well as by Hofbauer. Miller has reported good results in nine patients with postpartum, recurrent pyelitis. The improvement in such cases is attributed by Ginsberg to acceleration of drainage caused by an increase in tone of the ureters, a fact which is substantiated by Reimann's findings that the normal pelvic and ureteral shadows obtained after intravenous uroselectan show a rapid disappearance after the injection of pituitary extract. Draper and his associates have confirmed these results in dogs and present evidence in support of the view that active peristalsis or spasm accounts for the disappearance of these shadows. Their clinical results were good with 0.5 c.c. of pituitary extract every four hours, but they point out that this form of therapy is contraindicated during pregnancy because of the danger of inducing premature labor. In all, clinical evidence concerning the value of pituitary extract in pyelitis is meager and it cannot be regarded as a widely accepted method.

TERMINATION OF PREGNANCY

The treatment par excellence of pyelitis in gravid women is termination of the pregnancy. Few complications of gestation respond so dramatically to delivery, a prolonged, hectic temperature curve often falling abruptly and permanently to normal. There are three main indications for interrupting pregnancy because of pyelitis: (1) failure of the patient to improve after ten days of intensive treatment; (2) involvement of renal parenchyma as evidenced by persistent elevation of the blood nonprotein nitrogen; (3) extreme toxicity with lethargy and coma. The statistics of von Mikulicz-Radecki indicate that involvement of the renal parenchyma is seen in from one to three cent cent of cases. As a rule, termination of the pregnancy is best carried out by abdominal hysterotomy.

POSTPARTUM FOLLOW-UP AND THERAPY

Among 169 cases of gestational pyelitis treated by Crabtree and his associates, there were only three instances in which the urine became pus and bacteria free while the patient was still pregnant. With the involution of the upper urinary tract postpartum and the consequent relief of urinary stasis, the infection eradicates itself in most cases, possibly in two-thirds. In the remaining one-third, the patient, if untreated, continues to harbor the infection. This fact makes plain the urgent

importance of careful follow-up in these cases and the necessity of intensive postpartum treatment until two consecutive urine specimens are pus and bacteria free. Recurrence of pyelitis in a subsequent pregnancy is not uncommon but it is usually the result of failure to rid the patient of infection following the previous confinement. Even though the patient is completely cured, however, two years should elapse before the next conception.

DISCUSSION

W. E. Hoffman, M. D., Charleston: Dr. Eastman has given us an excellent paper on pyelitis of pregnancy. In 1916 Curtis published a paper on "Pyelitis of Pregnancy" and in preparing that paper he collected 109 articles devoted to this subject. Since that time there have been many additional contributions.

This infection may be the result of failure of elimination, bowel upsets, focal infection or as a reactivation of a pyelitis latent since infancy. It has been demonstrated that there is hypertrophy of the base of the bladder which includes the area where the ureters join it. The ureters are constricted at this point and are dilated in the upper portion. As pyelitis of pregnancy most often affects the right kidney and as a dextrotorsion of the pregnant uterus is frequent, if not usual, I am wondering what part this plays in so many cases of pyelitis on that side.

Titus states that palpation of the ureters by vaginal examination will usually disclose an area of distinct tenderness, especially at the point where the ureter crosses the ileopectineal line of the pelvis. This tenderness and enlargement is not often bilaterally equal, but is especially noticeable in the affected side when palpation of the other side elicits no such complaint.

Dr. Eastman has brought to our attention the latest medical treatment of this condition; namely, the use of sulfanilamide and mandelic acid. Although I have not seen any harmful effect on the baby of giving sulfanilamide prenatally, I am glad to hear Dr. Eastman's discussion on this subject. If these drugs are given properly and early along with large quantities of water, the condition usually improves.

The majority of cases that I have seen are those who have been sick for sometime and then referred to the hospital. They are acutely ill, with chills, high temperature, pain around the kidney region that radiates along the course of the ureter, sometimes with, or without pus in the urine and leukocytosis. These cases should have the care of a competent urologist and an obstetrician working together. We usually use frequent catheterization in our cases.

I agree with Dr. Eastman that the indwelling catheter may become plugged or, if left in too long, produce edema thereby doing more harm than good. If these cases abort or miscarry, I believe it is from the toxic condition of the patient and not the catheterization.

The severe cases should be examined four or five months later at which time, as shown by Crabtree and Prather, the ureter should have returned to normal.

Too frequent pregnancy may result in chronic atonicity of the ureter and kidney pelvis, giving a persistent pyelonephritis with interstitial tissue damage of the kidney.

Where trouble predominates on the left side something more than pyelitis should be considered. A complete urological examination for possible stones, tuberculosis, etc., should be done.

Dr. Robert J. Reed, Jr., Wheeling: I wish to thank Dr. Eastman for a very excellent paper, and also to give a personal phase in the treatment of pyelitis. I cannot speak too strongly of the very excellent results obtained from the use of sulfanilamide. My personal feeling is that a goodly percentage of women have had chronic pyelitis since infancy. A great many women will have pus in the urine—I do not know whether it will be over 50 cells. As Dr. Hoffman said, there may have been some reinfection, nevertheless I think many of these things are chronic from infancy.

I have a young daughter who is now seven and a half years old. At three months she had a very heavy pyuria and was very sick. She was my daughter, and we went through the whole works; she had everything. She was alkalinized and acidulated, she had urotropin and the ketogenic diet and she had mandelic acid until I thought she was going to die, and except for slight improvement nothing happened. We really went into this in a big way. I do not wish to impress you with the fact that she had repeated attacks of high fever, and so on, but she continued to have pyuria. She was cystoscoped at frequent intervals. It was thought that she may have had some slight right ureteral stricture. There

was reported a slight ureterocele on that side. Nevertheless, she did not improve, following anything.

Following the work of Dr. Helmholz and others a year or two ago, it was suggested that we start her on sulfanilamide, of which I approved. We started her on five grains three times a day. The urine of my child had been examined about every week for seven years, and after she had taken nine tablets, on the evening of the third day her urine was as clear as a crystal. I thought there was a catch in it. I called up my pediatrician and I was all excited. It was the first real bit of excitement we had had in our house in a long while. He said, "Well, that's fine," but the next morning it was cloudy. I went into complete collapse again. But I found out that this was phosphates, and it cleared up very rapidly with a drop of nitric acid. We continued with three tablets a day until she had taken twenty-four tablets. That was two years ago, and her urine has been examined about once a week since that time. I want you to know that my own child's urine has been clear for two years following the use of sulfanilamide.

I do not believe anything under the sun will wipe out a colon bacillus infection of the urine (and this, by the way, was a colon bacillus infection, on repeated culture) like sulfanilamide, and I do not believe there is any use monkeying with alkali or urotropin or mandelic acid or anything else when you are going to finally come back, as Dr. Eastman has stated, to the best drug for urinary antisepsis today. Maybe I am wrong, but I do not believe these other drugs cure those cases; I think they improve them; I question if they sterilize the urine and keep it that way. If any of you have the same thing you will get rid of it with sulfanilamide.

Dr. H. G. Steele, Bluefield: I should like to ask Dr. Eastman what his experience has been in the past before we had sulfanilamide, with pyridium and serenium in these cases.

Dr. Eastman (closing the discussion): Since sulfanilamide is a new drug it would seem worthwhile to report evidences of toxic effects. In the past two months I have observed two cases with pronounced psychic symptoms. The last was one of particular interest and occurred in a young primigravida who had received large amounts of sulfanilamide for an obstinate pyelitis. On the third day of treatment she became quite disoriented and saw animals crawling on the bed, deformed babies, and other objectionable objects approaching her. After withdrawal of the sulfanilamide, the patient's mental condition returned to normal within a few days. This patient had been receiving 4.8 grams of sulfanilamide daily for 72 hours.

In regard to Dr. Steele's inquiry, I regret that I have had no experience with pyridium or serenium and accordingly am not in a position to answer his question.

FALSE TEETH

Immediate replacement of one or two extracted teeth is now possible, thus eliminating even temporary embarrassment on the part of patients who take pride in their appearance, says Miss B. Bunnell, Madison, Wis., in her article, "False Pride and False Teeth," in *Hygeia, The Health Magazine,* for January.

If only one or two teeth need to be extracted, the dentist can replace them at once by false teeth which he has prepared in accordance with an impression of the patient's mouth, previously made.

The making of entire sets of false teeth, however, requires much more time. Moreover, if care is taken, correction of the contour of the patient's mouth and jaw can now be accomplished along with the making of dental plates.

If the patient has a receding chin, his profile line may be corrected by building out the gums of the teeth. Protruding gums may be improved by removal of some of the bone. For short chins the dentist often makes the teeth longer, to fill out the loose tissue which is soft about the mouth.

Standard sets of false teeth made in factories are selected on the basis of coloring of the natural teeth, size of the central incisors, and shape of the head—square, tapering or ovoid.

If the patient wishes to secure perfect reproduction of his teeth, however, the dentist must notice not only the peculiar twists and turns of the teeth but the individual stains or markings. He takes an impression of the patient's mouth with the natural teeth in it. To secure exact duplicates he must select teeth from several of the manufactured sets. If no duplicate is available, he must make the tooth by hand. This process requires a great deal of time and as a consequence is very expensive.

CRITICAL ANALYSIS REGARDING PERIODIC PHYSICAL EXAMINATIONS*

By JOHN J. BRANDABUR, M. D.
Huntington, West Virginia

SAYERS[1] in a recent paper defines industrial hygiene as the science of preservation of health of workers, and quotes Sir George Newman as follows: "In recent years we have learned that public health is not only a matter of the postponing of mortality and the prevention of sickness, but the positive side of health, the increase of vitality, capacity and efficiency of the human body. Our aim is not only to oppose diseases, but to advance and develop physical fitness and well-being. To secure this end we must have regard to the whole life of man, his heredity and upbringing, his work and rest, his food, his habits, his environment. We must pay attention not only to his actual ailments and diseases, but to the conditions making for a maximum degree of personal health. Thus it comes about that a new relation is found to exist between occupation and health. In a word, the health of the industrial worker forms an integral and inseparable part of the health of the community."

PROGRAMS OF LARGE INDUSTRIES

That this broad concept of industrial hygiene stated 20 years ago has not been a mere enunciation without any results, but is an actuality, is evidenced by several plans for analyzing the health problems of certain groups of industrial workers. All of you are familiar with the work carried out on the Metropolitan Life Insurance Company employees in New York. Several of the large industrial concerns such as the members of the automobile industries and steel companies all have their own programs. Only recently Emerson and Irving[2] published their results of a "Physical Fitness Service" offered to a group of executives, employees, and policyholders of the Aetna Life Insurance Company. Of course, it is needless to say that the railroad organizations were one of the leaders in this field of preventive medicine.

THE AUTHOR

Doctor Brandabur, Assistant Supervising Surgeon C. & O. Railway, graduated from University of St. Louis School of Medicine, 1928; interned St. John's Hospital, Cleveland; took his residency there, 1929-1930; specialty, Industrial Medicine.

Since the art of medicine is as essential to good medicine as the science of medicine, neither can be separated from the other in clinical practice. Applying this principle to the management of periodic physical examinations, it should follow that the examination records should be plainly interpretative, and the facts visibly available to anyone who must recheck them. It must be granted, also, that the periodic physical examination is a move toward a final objective; namely, to protect the personal welfare of each and every employee, and help prolong his life by appraising him of his defects soon enough that he can take the proper measures to correct them and in such a manner that the advice given to him will not be cause for alarm. This is practicing the art of medicine, and it has opened to the medical profession the possibility of vast attainment in a hitherto neglected field of preventive medicine.

Those of us who are interested in industrial medicine realize that we cannot be expected to reach a millenium all of a sudden, but must rather feel our way. Therefore, our primary concern is that the employee has what we term average good health, and when we find an employee below par, we so advise him. We are constantly striving to bring the below-average up to the average, and if possible, to raise the average to better than average. It is only humanly natural for those

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who are able to improve others in their general health to strive continually for that improvement; as an example, we only need to call to mind the progress that has been made in the contagious diseases. We are justly proud of these achievements and particularly so when we stop to consider that we have done so without the need of any outside influence, but mainly through the noble spirit of sacrifice of the members of the medical profession, in many instances to a point where men have laid down their lives to attain their purpose, and to quote "no greater love hath man for his friend than that he lay down his life for him."

With this thought in mind, that it is ever our lot to strive for improvement in the general health of those who are placed in our care, it was considered worthwhile to make a "critical analysis" of the results of our "periodic physical examinations."

GOOD HEALTH IS ECONOMY

It is a generally accepted fact in industry that the most competent and trustworthy employees are men past 40 years of age because of their acquired training and experience. From an economic standpoint the training of new men in skilled accomplishments is expensive, and it is cheaper for the employer to keep these men in good health, and therefore, keep them at work than it is to undergo the expense of turnover with its resultant upheaval and disaster. Of the 2,106 men examined in 1934, 1,700 were over 40 years of age. Strange to say, most of our real serious breakdowns are in men between the ages of 45 and 55 years of age, and just at the time when they are the most important factor to their families from an economic standpoint. The constant emotional and physical strain of this generation makes demands which former generations did not have to undergo. It demands for example, a maximum load function of the heart at all times. Little wonder then that the heart is so frequently played out at forty, and that we find our serious breakdowns just when an employee needs to be at his best.

As we have progressed in industry with the development of new inventions and physical discoveries, there always develop new problems affecting human physiology which must be met, so with the result of years of research and clinical experience, much progress has been made in the science of nutrition, industrial hygiene, and health education. Therefore, the industrial physician of today recognizes that there are prodromal, or early symptoms of breakdown which call for preventive measures and these are the points which concern us.

Since this is an analysis we must of necessity bore you with figures in order to make a comparison of our results, and since the examinations of 1938 are not completed, we are giving the summary of our examinations as completed in 1937, and comparing them with the results of our first examinations completed in 1934, as is shown in Table 1.

TABLE 1—LIST OF DEFECTS DISCOVERED

	No. and Percent			
	1934		1937	
Defects	No.	%	No.	%
Overweight	277	13.0	98	5.0
Teeth, (Pyorrhea, Dead Teeth)	317	15.0	128	6.4
Tonsils, diseased	83	4.0	14	0.7
Blood pressure (above normal)	421	20.0	237	12.0
Glycosuria	33	1.5	35	1.7
Albuminuria	139	6.6	63	3.3
Hernia	79	3.7	65	3.3
Abnormal Heart	99	4.0	75	3.8

Since we are merely trying to keep the employees with the average health in mind, we feel that it is more profitable if we can confine our discussions to commonly encountered defects, therefore, we are presenting the ordinary run of cases rather than rare pathological conditions. The examinations are made by 50 different doctors all along our system and not by one man for the purpose of statistical study to further his own pet theory. What's more, our results coincide with those made on the Erie Railroad on some 12,000 employees since J. Frank Dinnen, supervising surgeon, and the chief surgeon of the Erie Railroad has granted me the privilege of reviewing their results to see how they compare with ours.

The ages of this particular group range from 25 years to 75 years of age so that we have a wide enough range to include the average employee. Furthermore, this is a compulsory examination, and the employee is therefore not presenting himself with any complaints of illness, but on the other hand, for fear that he may be disqualified, he is more likely to keep the examining physician in the dark about any of his ailments. We have overcome this tendency considerably since the advent of these examinations by making the men realize that we are interested primarily in their personal welfare, and the only time that a man is removed from service is when he is a danger to the public or those working with him; secondly, if he is a danger to himself.

The analysis of our results in order to have a really critical evaluation, demands that all favorable and unfavorable opinions be taken into consideration. Since the examination blank as most of you men know concerns the question of vision, first permit me to give you the facts in this regard as shown in Table 2.

TABLE 2—REPORT ON VISION

	1934	1937
Men with normal vision	988	1,383
Vision corrected with glasses	649	1,012
Men that need glasses	428	206
May need glasses	30	0
Visual defects which cannot be corrected	11	10
TOTAL	2,106	2,611

In 1934, out of 2,106 men examined there were only 988 with normal vision, and 649 whose vision was corrected with proper glasses. There were 428 who needed glasses, and 30 whose vision was questionable as to the need of glasses. In 1937, out of 2,611 men examined there were 1,383 who had normal vision and 1,012 whose vision was corrected with glasses, and we had only 206 men who needed glasses in comparison to 428 in 1934. This despite the fact that we now had over 500 more men examined. For those of you who specialize in the eye, it might be interesting to note that in each instance about 50 per cent of these employees do not have what might be termed normal vision. Is this an unusual condition because these men place their eyes under more severe strain in their type of occupation, or is this the average finding in the normal individual? If it is, I am sure that we do not find 50 per cent of the people wearing glasses. Or is it because in the average periodic physical examination no thought is given to the eyes unless the patient complains of headaches or some symptom which is referable to the eye, and usually by that time considerable damage is done which is beyond repair? This might be a problem for the oculist to ponder over.

OVERWEIGHT

The question of overweight has in recent years been given considerable attention because of its influence in individuals with high blood pressure, and the predisposition of obese people to develop diabetes, also because the heart, kidneys, and liver are prematurely exhausted due to the extra work put on them by the body when it is carrying an excess of fat. Following the report of our results in 1935, a statement was made in my paper[3] that railroaders have good appetites, and it is hard to curb them because we had only 37 men out of 277 who had reduced their weight to normal. At this time we are pleased to report that this figure of 277 of 1934, has been reduced to 98 in 1937.

Sometimes we might wonder and become dubious as to whether focal infections play as large a rôle as we think. Bierring[4] helps to settle this doubt in his Frank Billings lecture before the Section on Medicine of the American Medical Association, in which he gives us an excellent survey on focal infection during the last 25 years, and in his summary states: "In spite of the critical attitude maintained in certain quarters regarding the continued acceptance of the concept of focal infection, it should be acknowledged that the efforts that have been proposed to detect and then to obliterate all forms of focal infection in the mouth and throat, as well as elsewhere in the body for preventive as well as curative purposes, besides being in accord with sound

reasoning from general principles, has received the support of strong experimental evidence." He further shows how careful clinical observations by various internists have substantiated Billings' theory as spoken in 1932, "Focal infection as an etiologic factor of general disease is now an established pathological principle."

DENTAL HYGIENE

That you have stressed the importance of dental hygiene to these men is very well evidenced by the fact that in 1934, there were 317 men who had dental sepsis in the form of pyorrhea or dead teeth, and in 1937, this figure was reduced to 128, or a reduction of 189 in a condition we consider foci of infection. Under this class we also place infected tonsils. In 1934, there were 83 such cases, and the figure was reduced to 14 in 1937.

In order to point out how important it is to rule out foci of infection, it might be well to cite just one very interesting case. An employee, age 51, on his first examination did not show anything except a slight hypertension and a soft boggy type of prostate, for which he was placed under treatment with good results. His second examination a year later showed a marked change of vision in both eyes, and the employee stated that he thought he was going blind in his right eye, so he was referred to Doctor T. W. Moore for a special examination. The report by Doctor Moore showed that this man had a chorioretinitis in both eyes and made the following notation: "He has evidence of arteriosclerosis in both eyes, and the retinal and chorioidal changes as stated above which I think are due to some form of toxemia or focal infection. He should be examined very carefully with special reference to his kidneys, heart, and prostate. He has small imbedded tonsils from which he is getting some absorption." The man was given these instructions and fortunately for himself, carried them out, and his tonsils were removed. A year later he presented himself for his periodic examination and told me that he was examined by an eye specialist in Indianapolis three weeks ago, which was about a year after the tonsils were removed, and the specialist told him that he did not have a chorioretinitis. I said that was possible and referred him again to Doctor Moore who reported the following: "The evidence of chorioretinitis shown a year ago seems to have disappeared with the exception of a very small scar above the disc in the right eye. This is a very interesting case and shows what can be accomplished by proper treatment." This case is just one of many which exemplifies how we are attempting to advance and develop physical fitness and well-being by increasing the efficiency of the human body.

HYPERTENSION IS CONFUSING

The question of hypertension is still a rather confusing one, particularly when it comes to any specific method of therapy. Whether Goldblatt's[5] series of experiments demonstrating the production of persistent hypertension in animals by application of a silver clamp to the renal artery will aid us in this regard, or just change the trend of opinion from a primary vasospastic disorder toward the renal origin at the present time, it is difficult to say; nevertheless, he has revitalized Bright's theory. According to his experiments once the renal clamps are applied, nothing will lower the blood pressure, and the hypertension persists even though the whole sympathetic nervous system be removed. One is tempted to say that if such is the case, the surgical treatment of hypertension which is so popular certainly does not answer our problems. The result of our examinations only help to make this problem more confusing. In 1934, we had 421 men with blood pressures above normal and in 1937, this figure was reduced to 237, and of this 237 still showing blood pressures above normal, 47 show improvement. In analyzing these results, there are several questions which should necessarily be answered. First what manner of treatment caused a reduction of 184 to a normal reading on our series of cases. Since we have referred these cases to physicians all along our line there was evi-

dently no specific form of therapy followed, and in the usual letter that was returned showing that these men were under treatment, the doctor makes the statement that he has placed the employee under diet and frequent observation. Emerson and Irving in an analysis of their "Physical Fitness Service" show that this is an important factor in the correction of causes of impaired health, because in their cases of hypertension no prescription was given or drug used. They found that "the most serious faulty health habits as related to hypertension were habitual overfatigue (caused by continuous performance under pressure), excessive intake of calories, and faulty food habits, indoor living and lack of regular exercise, and worry and stress. Several and frequently all of these factors appeared in each case on an analysis of the daily program. A majority of the men examined were readily convinced of their importance and were interested in undertaking their correction." These cases also were kept under frequent observation the same as you have done. In other words, these employees are being taught to live more sanely, and because of this, they are more health conscious.

Other questions which come to mind are what is considered as being above normal and what are the ages in which we found the greatest number with high blood pressure, and did we find that after a pressure reached a certain stage it did return to normal. In anticipation of such questions we tried to make a detailed analysis of these cases of hypertensions and have made up a list of the blood pressure ranges, and found them as set forth in Tables 3 and 4.

TABLE 3—ABNORMAL BLOOD PRESSURE RANGE

Ranges		No. of Cases
140-150	Systolic	12
150-160	Systolic	40
160-170	Systolic	72
170-180	Systolic	53
180-190	Systolic	33
190-200	Systolic	13
200-210	Systolic	6
210-220	Systolic	2
220-230	Systolic	2
230-240	Systolic	4

TABLE 4—HIGH BLOOD PRESSURES ACCORDING TO AGES

Age	No. of Men Examined		No. & % Found With High Blood Pressures			
	1934	1937*	1934		1937	
Years			No.	%	No.	%
25 - 35	132	128	12	9	5	4
35 - 45	649	639	71	10	29	5
45 - 55	773	740	159	20	84	10
55 - 65	431	383	153	35	97	25
65 - 75	120	72	38	31	15	20

*There were 148 men not examined in 1937, because of removal from service. Fifty-five of these 148 had hypertension.

In Table 3 you will note that we include blood pressure range from 140 to 150, whereas, most insurance companies consider 150 as the low point. The reason for the inclusion of the above is because our normal is considered as 85 plus the age. It is also noticed that a very few cases are in this particular range, and that most of our cases range from 160 to 170, or what might be termed the cases with which we have noted our best results, because this is the usual findings in the early cases of hypertension. In Table 4 you will note there is a definite rise, both in the percentage and the number of cases after 45 years of age. This is consistent with our findings that the most serious breakdowns begin at this age, and not as most people think at 60 years of age. We also noted that as the age increased, the percentage of employees with hypertension also increased. This is what one would naturally expect, but even with that, there is a return to normal in about 10 per cent of these individuals. In scrutinizing these figures further we found that once an individual's pressure reached 190 or over, it is rare to find that individual's blood pressure has returned to normal, although we did note a definite improvement in a number of these individuals.

In a recent General Motors Medical Conference, C. F. Kettering,[6] director of General Motors Research Laboratories made the following statement: "In industry where we work with a chemical balance, delicate machinery and the most exact information in the world we cannot get any agreement on what data mean, but even at that we do not worry about it." Yet we will all admit that the

General Motors Industry has accomplished a great deal in the last few years on the data they have been able to obtain through research. So it is with us here, we may not agree on what these data mean, nevertheless, we feel that our physicians along our system are accomplishing a great deal in preserving the health of workers, if only in teaching them how they can take care of themselves.

EFFICIENCY OF EXAMINATIONS

Snow,[7] the medical director of one of the General Motors division plants at Dayton, Ohio, made a survey covering 5,675 employees in their plants which is very interesting and instructive. He noted that only two deaths during the first year of employment were attributed to chronic diseases, and bases this on the efficiency of the entrance or pre-employment examinations. However, in the group employed more than ten years cardiovascular diseases accounted for two-thirds of the deaths. Since the men you examine are all over the entire system we are not able to correlate any such data, regarding deaths, but our examinations do show that out of 148 men disqualified for all services, we had 72 with abnormal heart action. At the last examination we found 75 men who are still in service with abnormal heart action. These 75 have had recheck examinations to determine the extent of their abnormality to be sure they are not a hazard. In 1934, we only had 99 men with abnormal heart action, whereas the 72 removed from service plus the 75 still in service with abnormal heart action equals 147. Is this because you doctors are paying more attention to the heart in these examinations, or is it because the men are now three years older than at the time of their first examination? We like to think it is the former reason, and in this regard, it might be pertinent to add that with the recognition of coronary disease in the early stage, a history of the man's subjective complaints is very important. Of course, we realize as stated before, the employee is going to attempt to hide his complaints because he fears for his job, but we feel that if you stress the point that you are merely trying to prolong the life of the employee, he will volunteer information in his history to you providing the doctor will only take a few extra minutes to listen to his story, and I think it well, in view of our knowledge of coronary disease, to view with suspicion the history of attacks of indigestion in any man past 45 years of age.

Since a great deal of attention is being given to diabetes in lay magazines the average layman gets the impression that this disease is on the increase, and many of our employees are more health conscious in this respect, and are, therefore, anxious to know the results of their urinalysis, so this phase of the examination becomes an important part of it; therefore, no routine examination should be complete without it. Most of us feel that there should be no necessity to make any such statements. Nevertheless, it has come to our attention recently that some men do not feel it necessary to examine the urine for sugar unless the specific gravity is above 1.026. The fallacy of such an attitude is well exemplified in our observations. In 1934, there were 33 cases with glycosuria, and in 1935, we found 35 such cases and in only a few did we find the specific gravity above 1.026. On the contrary, in several cases we found the specific gravity to be 1.012. This may be due to the fact that you have found these cases in the very early stage, and have placed the men on treatment for their condition so early as to prevent further degenerative changes in the pancreas. Our reason for this statement is that of the 35 cases noted, there are only three who have had to institute insulin treatment for their condition, and the other 32 are carrying along very well under dietary regime.

KIDNEY DISTURBANCES

That the urinalysis is an important factor is also borne out with regard to the detection of early kidney disturbances. In 1934, there were 139 cases with traces of albumin in the urine and in 1937, this was reduced to 63 cases. Other genitourinary disturbances have been discovered in these examinations such

as abnormalities of the prostate, but in view of the fact that routine prostatic examinations are not made by all the doctors on our system, we are unable to make a correlated study of this subject. However, the history or urinalysis disclosed sufficient evidence that further study should be made of the prostate in a number of cases. Since the greater percentage of our men are over 45 years of age, it might not be amiss to suggest that an examination of the prostate be made routinely in all of these examinations.

Our previous experience with the problem of hernia might be restated. In 1934, there were 79 hernias detected, and in 1937, there were 65, and since most of these hernias were found in men past 55 years of age, and in the majority of cases the doctor returned a letter stating that it was inadvisable to operate or that the man is wearing a good supporting truss, we felt that this might explain the small decrease in these cases.

NEUROLOGICAL PROBLEMS

Neurological problems, strictly speaking, are under the domain of the neurologist. Nevertheless, they concern us considerably because in our examinations we are dealing with men who must be alert mentally at all times, and if they are not, they are a potential danger and hazard because of any stupidity, dullness, or emotional instability. These defects may be revealed by history, questioning into schooling and vocational history. Frequently these employees get by in examinations because they will make every attempt to conceal any disability such as epilepsy or tabes in its early stages, but on the other hand, they can be detected by checking into certain vasomotor changes, for example: polyuria, tachycardia, and other nervous manifestations such as tremor, spasms, tics, sensation, and finally an ophthalmoscopic examination may reveal some evidence. It goes without saying that the deep and superficial tendon reflexes also might tell a story. What's more, unequal pupils do not necessarily have to have a luetic origin. This condition might also be the result of tuberculosis due to a change in the sympathetic system on account of the fixation of the apical pleura from adhesions. That the most of you are conscious of the vital importance of this part of the examination is well evidenced by the fact that we have detected several unusual cases of neurological significance. These comprise brain tumors, epilepsy, tabes dorsalis, anemia with cord changes, and toxic goitres, which shows what actually can be accomplished by the simple neurological tests and history questioning.

RESULTS ACCOMPLISHED

Since the aim of public health in industry is not only to oppose disease, but to advance and develop physical fitness and well-being, an analysis of the health problems affecting our employees, such as we have attempted to place before you, show the results that you as physicians along our system have accomplished in these examinations toward these principles and preservation of the health of these employees. So if these figures have bored you, just remember it was necessary to show how much good you are doing in your work; furthermore, since we must have statistics, it is also well to recall the advice of one of our foremost medical teachers—Osler: "Observe, record, tabulate, communicate. Use your five senses. Record, make a note at the time, do not wait. Do not waste your time in compilation, but when observations are sufficient, do not let them die with you. If you have the good fortune to command a large clinic, one of your chief duties is the tabulation and analysis of the carefully recorded experience. He who works in his own small compartment leads a restricted and circumscribed life. Go out among your fellows and learn from them."

Since this summary has followed this sage advice, you as physicians along our system may credit yourselves with the glory of these results. You were the ones who observed and recorded; we merely tabulated, and are now communicating. You were the ones who used your five senses and made the record at the time. We did not waste time in allowing your

information to be compiled, but felt that observations were sufficient, and we have attempted to analyze your carefully recorded experience with the thought in mind that our Chesapeake and Ohio Railway physicians have contributed to the science of the preservation of the health of workers and thereby helped to protect the personal welfare of each and every employee, and prolonged individual lives.

Chesapeake and Ohio Building.

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NONSPECIFIC LUNG INFECTIONS IN CHILDHOOD*

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THE determination of end results in any chronic disease offers the only reliable means for accuracy in prognosis. In this study, we have included cases which pass under the general terms of bronchiectasis, bronchosinusitis, purulent tracheobronchitis and lung abscess other than those due to tuberculosis, sporotrichosis, etc.

The basis for the study is an evaluation of the results in cases seen in the University Hospital Children's Clinic after the lapse of various periods from the onset of the disease. We may first define the terms.

BRONCHIECTASIS

Apparently the term bronchiectasis is used rather loosely and no one satisfactory explanation has been suggested which will cover all cases. This implies a multiple etiology.

The theories as to causation are chiefly:

(1) Fibrosis of the lung which distorts the bronchus by pulling. This theory is no longer tenable at least for the majority of cases, since fibrosis usually accompanies or succeeds bronchiectasis, rather than precedes it.

(2) Ulcerative bronchitis which more or less destroys the walls of the bronchus. If the patient survives, the changes are permanent. The exhaustive pathological study by McNeil, Magregor and Alexander[1] clearly demonstrated this mechanism as the undoubted cause in many instances. In all their cases the bronchitis formed part of the picture of bronchopneumonia. The sequence was as follows: Destruction of the lining membrane of the bronchus, with necrosis of the muscular coat and in some instances, of the cartilage. The extent of the lesion varies, giving rise to sacculated or cylindrical enlargement. Healing takes place by granulation tissue formed by fibroblasts and young capillaries. Thus a dense vascular fibrous layer relines the bronchus. Epithelium then grows over this from contiguous membrane which has not been destroyed. In this new structure there is no trace of muscular tissue, and little or no cartilage and elastic fiber. The new bronchus,

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therefore, lacks in those elements which permit the function of a normal bronchus. Cough and hypersecretion are the forces which act upon the weakened wall to cause dilatation before fibrotic healing is complete. On the basis of this conception of suppurative bronchitis it is obvious that minor degrees of injury might result in damage to — but not complete destruction of — a bronchus.

To this type due to ulcerative bronchitis may be added the cases of lung abscess with coincident bronchiectasis.

(3) Atelectasis. As Warner[2] describes the events, atelectasis is caused by a plugging of terminal bronchioles from inflammatory swelling and secretion of the bronchial walls. This results in greatly increasing negative pressure in the affected thorax. This increase in dilating force, acting on bronchial walls already weakened by disease, causes permanent dilatation. This atelectasis interferes with the normal movement of the bronchus which favors drainage. Stagnation of secretion in the bronchus, therefore, tends to occur.

If obstruction of the bronchioles is incomplete at first, the circular muscularis dilates during inspiration permitting air to enter, but contracts during expiration thereby causing emphysema, much as occurs in certain types of foreign body. Complete obstruction always causes collapse, as the imprisoned air is absorbed.

(4) Granting the indubitable effect of destructive disease of bronchial walls, or of atelectasis, some authorities claim that congenital defect of development of the elastic fibers in the bronchial walls is the chief etiologic factor. This Kartagener,[3] on the basis of his observations in 142 cases, classes as true bronchiectasis, as contrasted with "acquired" bronchiectasis. The reasons for this assumption briefly are (1) a striking predilection for the left lower and right upper and middle lobes; (2) absence of elastic fibers despite complete absence of inflammatory processes; (3) the coincidence of other anomalies and areas of malformation of the respiratory system in patients suffering from bronchiectasis and (4) familial occurrence. Kartagener concludes that, even if one admits the occurrence of acquired bronchiectasis, the congenital affection must be of more frequent occurrence than has heretofore been assumed.

(5) A fifth type is described as cystic bronchiectasis in which cyst-like formations are found in the bronchial walls. It is obviously difficult to segregate this from cystic disease of the lung. Other difficulties exist, however, in the interpretation of bronchiectasis during life.

The classical clinical picture of chronic cough, with occasional emptying of a bronchiectatic cavity of foul smelling pus, especially on arising in the morning, is seen in a minority of cases in childhood.

For some years, the occurrence of cough and a coincident röentgenogram showing fine sacculation in the course of a thickened trunk shadow, was accepted as evidence of dilatation.

With perfection of bronchoscopic technique, direct visualization of the bronchial trees could be made, and finally came the procedure of outlining the bronchi by means of opaque substances such as lipiodol, followed by röentgenograms.

Undoubtedly some apparent dilatations are seen to diminish in size over a period of time. If the term bronchiectasis implies permanent damage to a bronchus, such a result suggests: (1) either an error in diagnosis, or (2) that another form of dilatation occurs which does not result in permanent damage. The latter conception does not include those forms, such as Anspach describes, where an atelectatic area may be caused to disappear by drainage, before serious bronchiectasis has occurred. We have also had the experience that lipiodol injections made after the acute stage of a supposed bronchiectasis has passed, failed to show dilatation.

McNeil and his associates point out that widening of the lumina of small bronchi, especially in the center of the consolidated patches of bronchopneumonia is a common postmortem finding in fatal cases of acute

bronchopneumonia. Without histological examination, it would be impossible to determine the exact condition of these dilated bronchi, but the authors are of the opinion that some of these dilatations at least, are due to overstretching of the bronchial walls without any important structural change. They consider this analogous to the acute emphysema of vesicles which often accompanies it and believe that both are probably due to the same cause and that complete recovery is possible.

If one is to accept this more or less functional dilatation as true bronchiectasis, it is obvious that the statistical results of treatment are to be most gratifying.

Also, it is quite inaccurate to describe the triangular basal atelectatic root shadows seen at times during the early stages of infections as bronchiectasis. Many of the shadows will clear up completely without leaving any residual disease. That a repetition of the insults will permanently affect the bronchial walls is equally true.

It would seem to be desirable, therefore, that the term bronchiectasis should be reserved for those cases which show by injections of lipiodol or other opaque substances, definite pathological dilatations at the terminal stage of a subsiding attack. This will insure that a dilatation diagnosed clinically earlier in the disease is not a temporary manifestation and also avoid the confusing effects of early lipiodol injection upon the serial x-ray films which will be necessary during the acute stage of the attack.

CHRONIC CASES

Chronic cases of bronchiectasis usually can be diagnosed clinically on the criteria mentioned — symptoms, signs, röentgenograms and bronchoscopy—although radiography of an opaque substance alone will show the full extent of the lesions. Early cases could be considered as instances of bronchial relaxation, due to loss of tonicity of bronchial walls, cough or possibly temporary occlusion of terminal bronchi—until the term "bronchiectasis" could be proved by lipiodol or by indubitable symptoms and signs including those shown by röentgenography and bronchoscopy.

BRONCHOSINUSITIS

With regard to the new term bronchosinusitis, one fact stands out in the history of most cases suspected as bronchiectasis; namely, that most of the children were subject to frequent head colds, usually throughout their life, in addition to the bronchial disease. Some degree of sinusitis accompanies every severe headcold, much as infection of the antrum accompanies suppurative otitis media in young children. In many instances, in the intervals between the colds there are no active signs of sinusitis. It is apparently true that various factors which lower resistance, such as a new infection with Dochez cold virus, may activate a quiescent sinusitis. Too many of our cases, however, have shown no evidence of active disease of the sinuses at the time of admission to the hospital to permit us to believe that sinusitis *per se* is the most important factor in the etiology of severe bronchial disease. The theory that lymphatic absorption of bacteria from a chronic, but apparently inactive sinus infection, can give rise to recurring attacks of bronchitis and ultimately to bronchiectasis is difficult to accept.

If bacteria are actually carried to the right heart, why should they not regularly cause pulmonary rather than bronchial infections? Also, many of the children have had tonsillectomy and adenoidectomy, prior to the suppurative bronchitis and have begun to cough without antecedent head colds or nasopharyngitis.

The explanation for the occurrence of severe bronchial infection in some and not in other children probably is the same as that invoked for tuberculosis: (a) size and virulence of the infecting dose; (b) area involved, and (c) resistance of the host to the invading organism. The latter must always be a most important factor in any infection, even though we are at present not always able to detect it even with extensive serological study.

In other words, it seems to us that those cases which suffer from severe chronic sinus-

itis may infect themselves from this source. In that event, symptoms of head cold and sinusitis should be present. If both head cold and bronchitis originate acutely and simultaneously, the sinuses themselves can no more be inculpated than the bacteria of the rest of the upper respiratory tract. In many instances, an invasion from without affects nasal passages and bronchi, and the organisms residual in the host play no important rôle.

TRACHEOBRONCHITIS

This is but another term for suppurative bronchitis. It may originate de novo, or be consequent upon upper respiratory tract infection. It assuredly may lead directly to

Figure 1: Case 1. April 9, 1927, ten months after onset. Pneumonitis, abscess and cavitation upper part right lower lobe with paracardiac atelectasis.

chronic bronchitis with atelectasis, or to bronchopneumonia. Development of atelectasis must depend upon several factors: (1) degree of inflammation and tumescence of the bronchial wall; (2) characteristics and consistency of the inflammatory exudate; (3) tonicity of the muscularis and elastic cost in relation to the expulsive efficiency of the act of coughing, and (4) the activity of the cough reflex. The great importance of cough is the chief objection to the use of drugs to obtund it, after secretion is established.

We have also been impressed with the importance of age at onset. Children under four years appear to do worse than those over that age. This infers the agency of greater susceptibility to infection and less effective cough in the younger child.

There remains briefly to discuss the patient who shows a positive reaction to tuberculin and who may show mediastinal tuberculosis of the juvenile type, but who also has a mixed infection affecting the lower root areas. The elimination of active tuberculosis can be made with reasonable certainty by the röentgenographic appearance, course and repeatedly negative sputum examinations, including those of fasting stomach-washings.

Another group develops so-called bacterial allergy. In our experience the asthmatic attacks cleared with the improvement of the condition of the bronchi. Occasionally a true allergic child will develop bronchial dilatation, but essential asthma does not seem to predispose to true bronchiectasis.

Lung abscess as a rule is dependent upon (1) pneumonia, usually of the bronchial type; (2) operation in the upper respiratory tract, chiefly tonsillectomy and adenoidectomy, or (3) neglected foreign body in the lung. It may occur also in septicemia but in that case bronchopneumonic patches also are in evidence. Another type, cited by Maxwell[4] in his classification, follows abdominal operation. Diagnosis usually is easily established by röentgenograms and bronchoscopy, although suppurations in lung cysts may be confusing. Some difficulty may be found in distinguishing tuberculous from nontuberculous cavities.

CASE REPORTS

Cases can be grouped under five headings: (1) pulmonary suppuration; (2) bronchiectasis; (3) bronchial relaxation; (4) tracheobronchitis (referred as bronchiectasis), and (5) asthma with tracheobronchitis.

Five cases apparently resulted from bronchitis; all showed the presence of atelectasis.

Case 1: T. W., white, male, aged five and one-half years. Developed bronchitis June, 1926 with severe cough and profuse yellow sputum. Cough increased in severity. In August had hemoptysis. For next two months three hemoptyses recurred. Admitted November 20, 1926 with signs of consolidation and cavity in the right lower lobe; later the right middle lobe became involved. Empyema developed apparently from rupture of lung abscess and latter drained through the chest wall. No evidence of sinusitis. Clubbing of fingers developed later. X-ray examination showed pneumonia with cavitation in upper part of right lower lobe, a paracardiac atelectasis and no pleural reaction. Bronchoscopy showed lung abscess and bronchiectasis. After drainage of empyema was complete, the atelectatic area persisted for some time but gradually disappeared. Discharged May 11, 1927 much improved after twenty-four weeks in the hospital. Follow-up February 8, 1938, eleven and one-half years after onset. Perfectly well. Area of paraspinal tubular breathing on right. No cough or râles. Clubbing has disappeared. X-ray showed slight residual fibrosis and trachea retracted toward spine. Seventy-seven pounds gain in weight since discharge in 1927. Vital capacity 3500 c.c. (Approximate normal, 3800 c.c.)

Figure 2: Case 1. April 27, 1927. Empyema.

Diagnosis: Lung abscess, bronchial relaxation, empyema, atelectasis, following bronchitis.

Result: Apparent complete recovery.

Case 2: J. H., white, male, aged two years, four months. About July 13, 1932 developed fever and cough. Admitted July 27, 1932. Examination showed consolidation of right lower lobe with râles and tubular breathing. X-ray showed a triangular shadow and restriction of the diaphragmatic movement. Bronchoscopy showed suppuration confined to right lower lobe. No evidence of foreign body or sinusitis. Removed against advice October 15, 1932, improved but without much change in signs of collapse in right lower lobe. Follow-up, March 11, 1938, six years, four months since onset. In the interval has had pertussis, scarlatina, varicella, and frequent "head colds" with cough. In April, 1936, brought up blood-streaked sputum, two days before measles developed. For past year has been much better, without cough except with colds. Examination showed slight prolonga-

Figure 3: Case 1. February 4, 1938. Eleven years, eight months after onset. Slight residual fibrosis and trachea retracted toward spine.

tion of expiration with increased resonance over right lower lobe. No râles. X-ray examination was practically negative except a slight adhesion in the costophrenic sulcus.

Figure 4: Case 3. October 1, 1931, six weeks after onset. Triangular paracardiac atelectasis with slight displacement of heart to right.

Diaphragm moved freely. Has gained twenty-two and a half pounds since discharge in 1932. Expansion five cm. Vital capacity 700 c.c. (Approximate normal, 1400 c.c.)

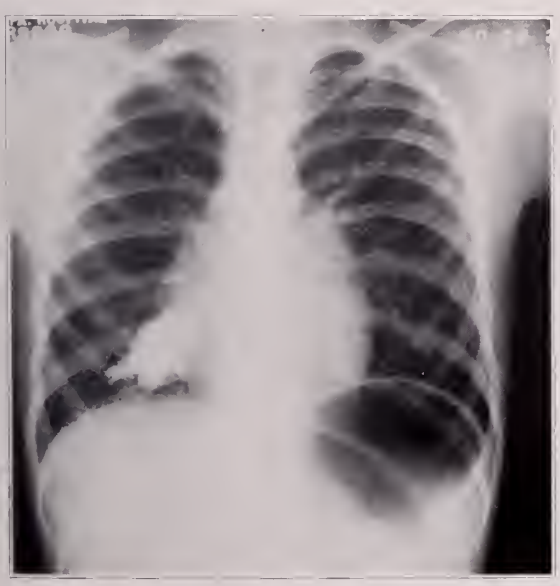

Figure 5: Case 3. October 23, 1931. Lipiodol injection. Cavity in distribution of the posterior branch of the right lower lobe bronchus.

(Test not satisfactory, could have done better.)

Diagnosis: Pulmonary suppuration, possible bronchiectasis; following bronchitis. Triangular root shadow.

Result: Much improved, but future uncertain.

Case 3: R. S., white, female, aged nine years. On August 15, 1931, she developed a "cold" with cough. After four weeks she began to have fever and a slight pain in the chest and was admitted September 29, 1931. Examination showed a triangular area of dull-

Figure 6: Case 3. January 13, 1938, six years, seven months after onset. Slightly increased lung markings.

ness in the right lower lobe with tubular breathing and fine râles. No evidence of sinusitis. X-ray examination showed a triangular area with the heart slightly displaced to the right. Bronchoscopy showed extensive bronchiectasis in the right lower lobe, a lipiodol injection showed a fair-sized cavity in the distribution of the posterior branch of the right lower lobe bronchus. She received bronchoscopic drainage twelve times and was discharged November 21, 1931, after fifty-four days' stay with almost complete cessation of the cough and negative physical examination. Follow-up January 13, 1938, six

years, five months after onset. She has been perfectly well, examination gives normal findings and x-rays show only slightly increased lung markings in the old area. She has gained seventy-five pounds in weight since discharge in 1931. Vital capacity, 2250 c.c. (Approximate normal, 2800 c.c.)

Diagnosis: Lung abscess; following bronchitis. Triangular root shadow.

Result: Apparent complete recovery.

Case 4: E. C., white, male, aged two and one-half years. Suffered from congenital stridor during first two years due to infantile type of epiglottis. On January 26, 1935, following a "blow on the face" developed fever and cough. Admitted February 1, 1935, with acute catarrhal pharyngitis and tonsillitis. No evidence of sinusitis. Examination showed dullness, tubular breathing and râles over a triangular area in the left lower lobe. X-ray examination showed atelectasis of an accessory lobe, left lower. Bronchoscopy showed suppuration in left lower lobe. He was discharged February 21, 1935 improved. X-ray showed that the chest had cleared considerably. He was readmitted on March 4, 1935 on account of persistent cough. The physical signs also persisted with slight x-ray findings. Bronchoscopy showed considerable pus. Discharged August 25, 1935, improved. Readmitted October 15, 1935 for bronchoscopy. Found to have a "cold" and ethmoiditis and maxillary sinusitis. Examination showed generalized bronchitis and diminished breath sounds over left lower lobe but no signs of consolidation. X-ray findings the same, but there was very little secretion in the lung on bronchoscopy. Discharged, improved, November 13, 1935. Readmitted June 6, 1936. He had been quite well in the interval until one week ago when he developed a severe cough and fever. Examination again showed triangular lesion in left lower lobe. X-ray examination showed triangular shadow, somewhat mottled. Bronchoscopy again showed pus coming from the left lung with granulation tissue in left lower lobe bronchus. He was discharged July 8, 1936, improved. Follow-up May 26, 1938, three years and four months after onset. He has been perfectly well since February. Examination negative. X-ray examination negative except moderate emphysema. He has gained seven pounds since February, 1935. Expansion, five cm. Vital capacity, 1200 c.c. (Approximate normal, 1000 c.c.)

Diagnosis: Pulmonary suppuration; following bronchitis. Recurrent triangular root shadow.

Result: Apparent recovery. Future uncertain.

Case 5: G. G., mulatto, male, aged one year. On January 11, 1937, a "cold" and cough developed which improved but did not entirely clear up. On February 8, 1937, cough became severe, with fever. Admitted February 11, 1937. Examination showed generalized bronchitis and pneumonia of right upper lobe. No evidence of sinusitis. X-ray examination showed a triangular paramediastinal shadow in this area, with a small patch of bronchopneumonia in left upper lobe. Bronchoscopy showed suppuration in right upper lobe. Negative to one mg. tuberculin (O. T.) discharged April 8, 1937, improved. Later x-ray examination showed improvement but not disappearance of the triangular shadow. Follow-up May 23, 1938, one year and four months after onset. He had been readmitted three times in the interval for attacks of nasopharyngitis, sinusitis, and asthmatic bronchitis. On further x-ray studies it was concluded that there was a permanent collapse of the inner portion of the right upper lobe. At present he is perfectly well, has no cough and examination shows only scattered rhonchi. X-ray still shows atelectasis. He has gained twelve and one-fourth pounds since April, 1937.

Diagnosis: Pulmonary suppuration; following bronchitis. Triangular upper lobe shadow. Asthma.

Result: Much improved, but probably not permanent.

Five cases followed pneumonia; one of these (Case 6) showed atelectasis.

Case 6: B. B., white, female, aged one and one-half years. Admitted to the Children's Hospital June 6, 1927. X-ray examination June 7, 1927 showed bronchopneumonia, spreading from the right hilum. June 13 "some resolution in right, spread to the left upper and lower lobes." June 22 "shadow on right persists, left lung showed mottling, suggesting tuberculosis." August 6 "tendency to a triangular paracardiac shadow right lung. Left lung cleared to a great degree." In January, 1929, she was treated at the Phipps Institute for Tuberculosis since the tuberculin test had been found to be positive and a diagnosis of chronic mixed infection was made. On November 24, 1929, she was sent to Dr. Gabriel Tucker for bronchoscopy. Examination showed a foul breath after coughing, harsh breath sounds and râles but no dullness over the base of the right lung. Posttussive râles at the left base. Bronchoscopic diagnosis was suppuration of the right lung. Examination of pus recovered at bronchoscopy was negative for tubercle bacilli as well as examination of two sputums and one stomach washing. Tuberculin test negative to .01 and 1.0 mg. of O.T., but positive to 2. mg. On December 2, 1927, she was discharged, unimproved, because of gonococcal vaginitis. Follow-up April 1, 1935, seven years, ten months after onset showed that cough had persisted although she seemed perfectly well. There was no clubbing of finger tips. Examination showed slight impairment to percussion over right lower lobe with occasional squeaky râles over both lower lobes. X-ray examination showed that the density in the right hilum persisted, with moderate exaggeration of trunk shadows. No calcium seen. She had gained forty-six and one-half pounds since December, 1929. (Impossible to trace this patient since 1935.)

Diagnosis: Suppuration of lung and primary tuberculosis; triangular root shadow; probable bronchiectasis; following bronchopneumonia.

Result: Improved, but future uncertain.

Case 7: D. P., white, female, aged eleven years. Subject to "colds" and cough for five years. On February 18, 1938, following another "cold", developed pneumonia with marked pleuritic pains. Admitted February 22, 1938. Examination showed diminished breath sounds and dullness over the lower two-thirds of left lung with one small area of tubular breathing and friction rub. No evidence of sinusitis. X-ray report was "effusion with heart drawn to left, presumably due to atelectasis. Also slight shadows at base of right lung." Puncture on two occasions revealed only a few drops of fluid containing rare gram-positive cocci on the first tap, and no organisms on the second. Culture for acid-fast organisms also negative. Blood culture was positive for type I pneumococcus (scant culture). Bronchoscopy first revealed an extensive pulmonary suppuration in left lung both upper and lower; later extensive bronchiectasis with fibrosis. Later x-ray examination showed that the left lower lobe had expanded. Lipiodol showed early bronchiectasis, left lower lobe. She was discharged April 30, 1938, much improved, having gained 11 pounds in weight. Follow-up, May 27, 1938, four weeks later. General health good until a "cold" developed three days ago. Still continues to cough occasionally. Examination shows impaired resonance and expansion of left lower lobe, with a few dry râles. X-ray examination shows slight pleural thickening on left with adhesion to dome of diaphragm but lung field is practically clear. Bronchoscopic report: Blood stained secretion from left main bronchus from granulation tissue, much improved. Orthodiagraphic examination showed distortion of heart shadow during respiration suggesting pericardial adhesions. Has lost one pound since discharge. (Recent "cold"). Expansion, 2.5 cm. Vital capacity, 1500 c.c. (Approximate normal, 1900 c.c.)

Diagnosis: Pulmonary suppuration; bronchiectasis; following pneumonia.

Result: Improved but not permanent.

Case 8: D. O., white, female, aged one and one-half years. On February 14, 1938, developed head cold and cough and on February 22, pneumonia. Admitted February 24, 1938. Examination showed diminished—later tubular breathing, and dullness, left upper lobe with many râles. Sinuses negative. X-ray examination showed pneumonia. On March 11, multiple cavitations appeared. On March 15, bronchoscopy showed abscess left upper lobe. She was discharged on May 13 in good condition, having gained one and one-half pounds. X-ray examination showed almost complete resolution. Follow-up June 9, 1938, three and a half months after onset. She has been perfectly well with only an occasional cough. Examination negative. X-ray shows practically complete resolution. She has gained one pound since discharge, May 13. Expansion 3.2 cm.

Diagnosis: Lung abscess; following bronchopneumonia.

Result: Apparent complete recovery.

Case 9: R. H., white, male, aged 11 years. General health good. Occasional colds. About February 8, 1934 had a slight "head cold" with cough, but continued to attend school. One week later had a sudden severe pain in the right chest with fever, severe cough and profuse foul sputum. In bed two weeks. Returned to school. Two weeks later, March 15, pain and foul sputum recurred, lasting several days. April 30 operated upon for empyema (not much pus found). June 5 profuse sputum with blood, repeated on August 10. Drainage tube removed September 25. November 1 abscess of "chest wall' was drained. This was repeated four times. Cough with sputum persisted but he was not acutely ill. December 12, pain, fever and foul sputum recurred. Admitted December 27, 1934. Examination showed impaired resonance and harsh breathing over upper right lung; dullness with amphoric and suppressed breathing with many râles over middle and lower lobes respectively. Later cracked pot tympany, egophony and cavernous breathing over middle lobe. No evidence of sinusitis. X-ray examination showed extensive lesion of whole right lung with multiple cavities in the right middle lobe. January 25, lipiodol showed multilocular abscess. Bronchoscopy showed pulmonary suppuration and lung abscess. Discharged May 26, 1935 having gained twelve and a half pounds. Readmitted September 21, 1935, greatly improved subjectively and with fingers showing moderate clubbing. Follow-up May 28, 1938, four years and two months after onset. Perfectly well. Has two or three "colds" with cough each year, lasting six to eight days. No cough in intervals. Examination shows very slight impairment over right middle lobe, with increased vocal resonance. Over lower lobe, dullness becoming flat below level of seventh dorsal vertebra; diminished breath sounds and resonance. Above the level of the seventh dorsal vertebra there is a small area of amphoric breathing and slight whispered pectoriloquy, with an occasional dry clicking râle. X-ray examination shows fibrotic changes, tenting of the diaphragm and what appeared to be emphysematous blebs. He has gained 34 pounds in three years since discharge. The finger nails are curved but clubbing has disappeared. Chest expansion, five cm. Vital capacity, 1900 c.c. (Approximate normal, 3100 c.c.)

Diagnosis: Lung abscess; empyema; probably following pneumonia.

Result: Much improved. Future uncertain.

Case 10: D. P., female, aged two and one-half years. Italian. About March 23, 1928 developed fever and cough. Admitted April 6, 1928. Examination showed dullness, tubular breathing and râles over left lower and part of left upper lobe, and over right lower lobe. By May 3, the entire left lung had become involved with areas of amphoric breathing. X-ray examination showed diffuse migratory bronchopneumonia of right upper and lower lobes, and left upper and lower lobe; later abscess cavities in left upper and lower

lobes. No evidence of sinusitis. A direct laryngoscopy done because of dyspnea and cyanosis showed ulcerative laryngitis. Death occurred May 3, 1928. Autopsy. Subacute bronchopneumonia with fibrinous pleurisy in all lobes, with bronchiectasis and fibrosis. One abscess cavity one and one-half cm. in diameter, in left lower lobe and another cavity in left upper, possibly emphysematous. Gangrenous ulceration of mucosa of mouth, larynx and epiglottis.

Diagnosis: Bronchiectasis and lung abscess with pneumonia.

Three cases followed tonsillectomy and adenoidectomy:

Case 11: A. K., white, male, aged four and one-half years. In November, 1933 had a tonsillectomy and adenoidectomy. This was followed by a cough which persisted and grew worse until admission on March 3, 1934. He was markedly emaciated and febrile. Examination showed dullness, suppressed tubular breathing and many râles over left lower lobe, with less pronounced findings over the left upper lobe. No evidence of sinusitis. X-ray examination showed partial obstruction of the left lower lobe bronchus and an area of increased density in the left upper lobe, with posterior displacement of the heart. Bronchoscopy showed lung abscess, left lower lobe, "drowned" lung and early bronchiectasis. He was discharged much improved on June 6, 1934 after three months' stay; the x-ray report on June 5 showing complete resolution. Follow-up January 13, 1938, four years and two months since onset. He had gained thirty pounds since discharge and was perfectly well except for occasional "colds" with cough and copious yellow sputum lasting seven to eight days. Examination showed slightly impaired resonance over a triangular area in the left lower lobe with diminished breath sounds and occasional small creaking râles, without expiratory wheeze. X-ray examination showed prominent pulmonary markings in both lung fields. Expansion five and one-half cm. Vital capacity, 1250 c.c. (Approximate normal, 1600 c.c.)

Diagnosis: Lung abscess; following tonsillectomy and adenoidectomy.

Result: Much improved, but future uncertain.

Case 12: C. M., a male, aged three years, two months. White. Tonsillectomy August 8, 1932. On August 11, temperature 103 degrees and sore throat. August 15, otitis media. August 23, found to have lung abscess, right upper lobe. Referred to Doctor Tucker August 26, 1932. X-ray confirms presence of abscess of right upper lobe. Bronchoscopy. Pulmonary suppuration, abscess. September 27, 1932, bronchoscopy shows absence of pus. Discharged in good condition October 22, 1932 after two months' stay. Well until August, 1934, when he developed hay fever. Readmitted January 27, 1935 for asthmatic bronchitis. Found to have ethmoiditis. X-ray still shows shadows in right upper lobe. Readmitted March 13, 1936. Pneumonia and empyema right middle and lower lobes. X-ray shadow in right upper lobe persists. Follow-up May 27, 1938, five years and nine months after onset. Has had asthmatic attacks in interval, but well for past six months. Examination negative. No râles or emphysema. No clubbing. X-ray examination negative. Has gained twenty-five pounds since 1932. Expansion, four cm. Vital capacity, 1400 c.c. (Approximate normal, 1600 c.c.)

Diagnosis: Lung abscess; following tonsillectomy and adenoidectomy.

Result: Apparent recovery.

Case 13: A. P., white, male, aged 10 years. On July 5, 1934 had tonsillectomy and adenoidectomy. Moderate fever continued. In October, 1934, had pneumonia, right lung, with hemoptysis. Admitted November 20, 1934. Examination showed dullness to flatness over middle lobe (below third rib) with two areas of cavernous breathing. Elsewhere, the breath sounds were diminished. Many

clicking râles. No definite signs over right lower lobe except scattered râles. No evidence of sinusitis. X-ray examination showed abscesses of right middle lobe. Bronchoscopy showed bronchiectatic abscesses of right middle and upper lobe. Throughout the next year he continued to cough, had several hemoptyses, profuse sputum, but gained six pounds in weight. In October, 1935, was transferred to surgical service for lobectomy. Lipiodol demonstrated large abscess cavity. He bore pulmonary surgical intervention badly and died of circulatory collapse, December 14, 1935. On one occasion, needling of the lung produced cystic fluid. No autopsy.

Diagnosis: Lung abscess; following tonsillectomy and adenoidectomy, lung cyst (?).

BRONCHIECTASIS

Five cases could be definitely diagnosed as bronchiectasis by lipiodol or at autopsy (Cases 7, 10, 14, 15 and 16). One apparently followed bronchitis and showed atelectasis (Case 14). The other four followed pneumonia. Two also had pulmonary suppuration (Cases 7 and 10). In addition, Cases 6, 17 and 18, probably had bronchiectasis and one (Case 2) was listed as possible bronchiectasis. That lipiodol was not used more often was due to the fact that we were often unsuccessful in securing good distribution of the lipiodol and that the cases were seen in a general ward service not especially part of a lung clinic. Lipiodol injections are definitely unpleasant and we did not feel justified in using them unless clinical conditions seemed to warrant it.

Case 14: F. McG., a white male, aged seven years. Developed bronchitis on January 1, 1928, which persisted with much cough and yellow sputum for three months and then subsided. On September 2, 1929, awakened with dyspnea, relieved by vomiting. Cough began with profuse purulent foul sputum, "nearly a pint" a day. Admitted September 16, 1929 with signs of impaired resonance and breath sounds over right lower lobe and many coarse râles. Later the left lower lobe showed the same impairment. Slight maxillary sinusitis. Attacks of asthmatic type of dyspnea occurred and the sputum was profuse but not foul. X-ray and bronchoscopic diagnosis was bilateral bronchiectasis. Improved consistently and was discharged in good condition October 14, 1929 after twenty-nine days' stay. Follow-up: December 21, 1937, ten years after onset. After discharge from the hospital he stayed at a sanitorium for a year, with a fourteen pound gain in weight and only occasional slight attacks of nocturnal asthma. In 1931 and 1932 he was essentially well except for an attack of scarlatina in July. In January, 1933, he came back to the hospital for bronchoscopic examination. The diagnosis was chronic tracheobronchitis and the bronchi were seen to collapse when he coughed. He remained well until about November 15, 1937 when a cough with sputum developed. He was readmitted to the adult medical ward December 1, 1937. Examination showed triangular area of dullness in left lower lobe with an area of amphoric breathing at the angle of the scapula, and many mucous râles which cleared after cough. X-ray showed bronchiectasis of left lower lobe with displacement of heart to left. Confirmed by lipiodol injection. He was discharged in good condition December 21, 1937, nine years after onset with persistence of signs of dullness and a few râles in left lower lobe. He had gained seventy-five pounds since October, 1929.

Diagnosis: Bronchiectasis, following bronchitis. Triangular root shadow. Possible bronchosinusitis.

Result: Persistent bronchiectasis.

Case 15: D. M. T., a male, aged seven years. White. Asthmatic breathing with a cough noted in his second year. In October, 1927 began with "cold", cough and wheezing followed in four days by bronchopneumonia. In November, he had an attack of asthmatic bronchitis. Following this, slight evening temperature and cough persisted. Admitted January 17, 1928. Examination showed a small area (four by eight cm.) of dullness in right lower lobe, tubular breathing, whispered

pectoriloquy and crackling râles. Evidences of slight sinusitis. X-ray examination showed localized bronchiectasis. Bronchoscopy showed purulent tracheobronchitis and bronchiectasis. Later lipiodol injection showed clubbing of bronchioles and slight fusiform dilatation—apparently a recent process. He was discharged on February 15, 1928, definitely improved. He was readmitted twice in 1928 for bronchoscopic drainage. Follow-up January 4, 1932, four years and three months after onset. Examination of lungs was negative, although he had had several "colds" with cough, usually with asthmatic breathing. X-ray showed only accentuation of trunk shadows. Bronchoscopy showed much less pus and no bronchial dilatation. He had gained twenty-one pounds since February, 1928. February 4, 1938, his father wrote that the patient had been well since 1932 except for one attack of asthma and an occasional "cold." This was nine years and four months after onset.

Diagnosis: Bronchiectasis; tracheobronchitis; following pneumonia. Asthma. Possible bronchosinusitis.

Result: Apparent recovery. Future uncertain.

Case 16: M. V. N., a white male, aged 21 months. In October and December, 1927, had pneumonia. Cough persisted after the latter attack. About January 26, 1928, admitted to St. Christopher's Hospital and was transferred to University Hospital on March 20. Examination showed impaired resonance, harsh breath sounds and râles over right hilar region. The entire left lung showed more or less consolidation with tubular breathing and râles. No signs of cavity or sinusitis. X-ray examination showed a dense left lung shadow and a right hilar shadow. Bronchoscopy showed pulmonary suppuration left lung. The child died April 1, 1928. Autopsy showed areas of recent bronchopneumonia, right lung, fibrinous pleurisy, atelectasis, bronchiectasis, purulent bronchitis, acute and chronic bronchopneumonia, left lung.

Diagnosis: Bronchiectasis with pneumonia.

Case 17: A. E., a female, aged five years. White. She had been subject to head colds and coughs, and since the age of two years (1934) had had four attacks of pneumonia (two in 1936). Impossible to determine date of onset. Admitted to the O. P. D. April 30, 1937 for study. Examination showed chronic infected tonsils, but no clinical evidence of sinus or lung disease. Later, at various times, she showed signs of bronchitis, and x-ray evidence of ethmoid and maxillary sinus disease. X-ray of the chest suggested bilateral bronchiectasis. Bronchoscopy (September) showed bilateral bronchiectasis, worse on right. Follow-up, May 26, 1938 (at least three years after onset). For the past winter she was at the Seashore House, Atlantic City, and escaped an attack of pneumonia. She is still coughing. Examination shows slight impairment of percussion note over the lower half of the right lower lobe, with slightly prolonged and higher pitched expiration, with coarse inspiratory râles and a few fine râles at end of deep inspiration. Coarse râles also heard over left lower lobe. X-ray examination shows exaggerated trunk markings in both lower lobes. Has gained three pounds since April, 1937. Vital capacity, 500 c.c. (Approximate normal, 1075 c.c.) Bronchoscopy June 7, 1938, showed large amount of pus coming from each main bronchus with marked inflammatory reaction which reduces lumen of the main bronchi. Apparently not carrying out her postural drainage.

Diagnosis: Probable bronchiectasis; tracheobronchitis; following pneumonia.

Result: Essentially unimproved.

Case 18: E. T., female, aged 10 years. White. About January 1, 1929, began with a series of head colds, headaches and cough. Since May 10, 1931, the attacks have been more frequent and severe, with fever. Admitted June 12, 1931, with impaired resonance and breath sounds with râles over left lower lobe. No evidence of sinusitis. X-ray

examination showed a questionable bilateral bronchiectasis. Bronchoscopy showed slight bilateral bronchiectasis with tracheobronchitis. Examination of the sinuses was negative. The temperature came to normal in twenty-four hours and the patient was discharged July 31, 1931, after eleven weeks' stay, having gained eight pounds. She was readmitted on September 19, having had several attacks of cough since discharge, with thick tenacious yellow sputum. Physical signs, x-rays and bronchoscopic reports were the same as on the previous admission. She improved slowly and was discharged November 6, 1931, after seven weeks' stay. She was then sent to a sanitorium where she stayed until June, 1932. She went to a girls' camp for ten days in August where she actively engaged in swimming. The day after returning home she developed fever, with gray foul blood-streaked sputum, but no cough. This continued only in morning. Readmitted September 8, 1932. Physical examination was negative, except moderate congestion over the turbinates. No postnasal discharge seen. X-ray examination of the sinuses and lungs negative. She was not bronchoscoped and was discharged well on September 13, 1932. Follow-up February 3, 1938, nine years and one month after onset. Perfectly well since except minor colds occasionally. She has gained 56 pounds in weight since 1931. Vital capacity, 2200 c.c. (Approximate normal, 4000 c.c.)

Diagnosis: Probable bronchiectasis, tracheobronchitis; following bronchitis.

Result: Apparent recovery but future uncertain.

BRONCHIAL RELAXATION

Five cases showed evidence of dilatation of bronchi by bronchoscopy but were found to be perfectly well and free from physical signs at the end of periods ranging from four to eleven and a half years. Two followed bronchitis (Cases 19 and 20); three followed pneumonia (Cases 1, 21 and 22). In addition, the two cases with asthma (Cases 23 and 24) at times showed bronchoscopic evidence of dilatation.

Case 19: R. M., white, male, aged eight and three-quarters years. Developed head cold and cough September 20, 1933; moderately severe cough with whitish yellow sputum. Admitted November 6, 1933, with signs of bronchitis. No evidence of sinusitis. X-ray and bronchoscopic diagnosis was bronchiectasis, chiefly in left lower lobe. Discharged December 25, 1933, much improved after forty-eight days in the hospital. Follow-up January 21, 1938, four years and four months since onset. Much improved. No cough, râles or physical signs in chest. X-ray still showed exaggerated lung markings. No clubbing at any time. Has gained 20 pounds since discharge, 1933. Vital capacity, 1800 c.c. (Approximate normal, 2250 c.c.)

Diagnosis: Bronchial relaxation; following bronchitis.

Result: Apparent recovery.

Case 20: T. H., a male, aged nine years. White. About January 25, 1933, he developed cough and attacks of cardiac palpitation, with moderate fever. Admitted February 23, 1933. Examination showed dullness, increased fremitus, amphoric breathing and crackling râles over the left lower lobe. The amphoric breathing and râles would temporarily disappear after coughing. There was a slight ethmoiditis. X-ray examination suggested bilateral bronchiectasis, worse on the left. Bronchoscopy revealed bilateral bronchiectasis. He was discharged, April 24, 1933, after one month's stay, greatly improved. Follow-up January 13, 1938, five years after onset. In 1936 and 1937 he suffered from "hay fever." In April, 1937, had scarlet fever followed by a cough with yellow sputum for three weeks. In all other respects has been perfectly well. Examination of chest is negative. X-ray examination shows only increased lung markings. He has gained sixty-two and one-half pounds in weight since 1933. Expan-

sion, five and one-half cm. Vital capacity, 3300 c.c. (Approximate normal, 2900 c.c.)

Diagnosis: Bronchial relaxation; following bronchitis. Possible bronchosinusitis.

Result: Apparent complete recovery.

Case 21: J. G., male, aged eight years. White. In March, 1928, had "pneumonia" for one month and continued to cough. In May, he was taken to the Phipps Institute for Tuberculosis and studied by Doctor McPhedran. The tuberculin tests were repeatedly negative. Diagnosis: Recurrent basal pulmonary infection—nontuberculous. X-ray of sinuses, February, 1929, showed bilateral empyema of maxillary sinuses with clouding of the ethmoids. Admitted March 4, 1929. Physical examination of lungs was essentially negative. X-ray examination showed bronchiectasis. Bronchoscopic report was slight bilateral bronchiectasis. As the tonsils were chronically infected, a tonsillectomy and adenoidectomy was done and the maxillary sinuses drained. He was discharged in good condition May 21, 1929 after eleven weeks' stay. Follow-up March 11, 1938, ten years after onset. Perfectly well. Takes active exercise. X-ray shows only slight exaggeration of lung markings. He has gained eighty-seven pounds since discharge in 1929. Vital capacity, 3000 c.c. (Approximate normal, 4200 c.c.)

Diagnosis: Bronchial relaxation; following pneumonia. Probable bronchosinusitis.

Result: Apparent complete recovery.

Case 22: M. F., male, aged eight years. In October, 1925, he had an attack of bronchitis following a tonsillectomy and adenoidectomy. In December, 1925, had scarlatina and bronchopneumonia; cough persisted. In 1928 and 1929 was treated for bronchiectasis, chiefly by postural drainage, as advised at the Phipps Institute. During this time, he developed asthmatic attacks. In February, 1930, developed a severe cough and was admitted March 4, 1930. Examination showed impaired resonance at the right base with diminished vocal resonance and a few râles which disappeared temporarily after coughing. No evidence of sinusitis. X-ray examination showed prominent trunk shadows, especially at the right base but lipiodol injection March 18 failed to show bronchiectasis. He was discharged March 24, 1930. The cough had largely subsided and skin tests with usual allergens were negative. Follow-up April 11, 1935, nine years and six months after onset showed that he still "hawked up" mucus occasionally but that he had not had asthma and that his general health was much better. No clubbing. Examination of lungs, negative. X-ray examination showed moderate exaggeration of right lower root branches but no bronchiectasis. Had gained forty-six and one-half pounds since 1930. (Impossible to trace further.)

Diagnosis: Bronchial relaxation; following pneumonia. Asthma.

Result: Apparent complete recovery.

Case 23: E. J., white male, aged seven years. About July, 1928, began to have asthmatic attacks, in conjunction with "colds" and cough. He was admitted first November 13, 1928 and was found to have pansinusitis. Discharged December 2, 1928. Readmitted October 10, 1929. Examination of chest showed asthma, bronchitis and emphysema. X-ray examination showed bilateral lower lobe bronchiectasis but lipiodol injection later failed to disclose it. Bronchoscopy showed purulent tracheobronchitis and mild bronchiectasis. Between November, 1928 and March, 1937, he was admitted nine times, for asthmatic attacks. Follow-up December 20, 1937, ten years and six months after onset, showed that he averaged one asthmatic attack a month, relieved by adrenalin; the sputum usually is white; there has been no hemoptysis; his general health is excellent. Examination showed emphysema. X-ray showed prominent lung markings and slight emphysema. He has gained 70 pounds in weight since December, 1928. Expansion, five cm. Vital capacity, 2500 c.c. (Approximate normal 4100 c.c.)

Diagnosis: Tracheobronchitis and asthma. Bronchial relaxation. Pansinusitis.

Result: Much improved. Future uncertain.

Case 24: G. McG., a male, aged 12 years. White. After a strenuous football season in fall of 1928, developed cough of increasing severity, with "dyspnea." Admitted March 8, 1929. Examination showed generalized bronchitis with musical râles and slightly prolonged expiration. Later, had two asthmatic attacks, but was found to be negative to all common antigens. House dust not obtained. The sinuses were negative to examination and x-ray. X-ray examination showed bilateral bronchiectasis, worse on right, with slight emphysema. Bronchoscopy showed bronchiectasis and purulent tracheobronchitis. Discharged improved April 7, 1929. Follow-up June 26, 1938, ten years after onset. After discharge in 1929 was in "poor health." In 1933 was treated at another allergy clinic and was gradually desensitized to "house dust." For the past five years has been perfectly well, is on the boxing team at his college and was graduated this month. No cough. Examination negative. X-ray report "normal lungs." Has gained eighty-six pounds in ten years. Vital capacity, 4420 c.c. (Twenty-one years of age.)

Diagnosis: Bronchitis and asthma. Bronchial relaxation; following bronchitis.

Result: Apparent complete recovery; future as to asthma uncertain.

TRACHEOBRONCHITIS

Two cases had such prolonged or repeated pneumonia as to justify suspicion of bronchiectasis. Both had completely recovered at the end of six and three years respectively.

Case 25: M. W., female, aged seven and one-half years. White. On December 1, 1931, she developed a cold. Twelve days later, cough, vomiting and fever occurred and she was admitted December 14, 1931, with bronchopneumonia of the right lower lobe. Profuse yellow sputum. Febrile period to 102 degrees or over lasted, with intermissions, for thirty-one days. Slight maxillary sinusitis. The x-ray report was bronchopneumonia with bronchiectasis but on bronchoscopy only "tracheobronchitis limited to the right lower lobe" was found. She was discharged February 20, 1932, much improved after nine weeks in the hospital. Follow-up January 28, 1938, six years and two months since onset. She coughed for one month after discharge and since then has been well. The lungs are negative to physical and x-ray examination. She had gained sixty-eight pounds since discharge in 1932. Expansion of chest, four and one-half cm. Vital capacity, 2900 c.c. (Approximate normal, 2250 c.c.)

Diagnosis: Tracheobronchitis with pneumonia. Possible bronchosinusitis.

Result: Apparent complete recovery.

Case 26: F. S., a male, aged eight years. White. Always susceptible to colds. Has had four attacks of pneumonia, two before five years, and two in his fifth year. Since then many attacks of head colds and bronchitis. No asthma. Referred for study April 1, 1935. Examination on admission essentially negative. No evidence of sinusitis, clinical or x-ray. Tonsils had been removed in 1930 (three years). X-ray examination shows only the exaggerated lung markings associated with bronchitis. Bronchoscopy shows mild chronic tracheobronchitis. Discharged April 12, 1935. Follow-up, June 4, 1938, three years and two months since admission, April, 1935. Has been perfectly well except occasional slight colds. No chronic cough. Examination negative. X-ray examination shows only slight exaggeration of trunk markings in left lower lobe. Has gained nineteen pounds in three years. Expansion, four cm. Vital capacity, 1800 c.c. (Approximate normal, 2000 c.c.)

Diagnosis: Tracheobronchitis.

Result: Apparent complete recovery.

ESSENTIAL ASTHMA

Asthma: One case had essential asthma with tracheobronchitis (Case 23) and another with bronchitis (Case 24). Both showed bronchial relaxation. In addition, Cases 5, 12, 14, 15 and 22, had attacks of the asthmatic type of bronchitis.

Tendency to Respiratory Tract Infection: Of the twenty-six patients, eighteen had been subject to head colds and fifteen to attacks of bronchitis, before onset.

Bronchosinusitis: Of twenty-five patients, six showed evidences of sinusitis on admission (no record in one case, No. 12). Two of the six had bronchiectasis (No. 14 and 15); two had tracheobronchitis (No. 23 and 25) and two, bronchial relaxation (No. 20 and 21).

Pneumonia: Of twenty-six patients, sixteen had had pneumonia previously or were admitted with pneumonia.

Tonsillectomy and Adenoidectomy: Fifteen had had tonsillectomy and adenoidectomy prior to admission.

Anemia: That anemia *per se* had no influence upon the onset may be inferred from the fact that only five children showed a red cell count below 4,000,000 on admission, although all had been sick with suppuration of the lung, for periods ranging from one to forty weeks. Only three of the five showed a hemoglobin value below 60 per cent, and one other child with a red cell count of 4,000,000. The effect of continued infection could not be gauged because all patients who developed anemia were treated by blood transfusions.

Measles and Pertussis: The influence of measles and pertussis upon lung infections, chiefly pneumonia, is obvious. Of the twenty-six cases, eight had had measles, three pertussis, ten both measles and pertussis, and five had not had either. In one instance, (Case 1) measles had occurred in March, but severe cough had not developed until June, but the mother thought the boy "had not been well" since having measles. In all other cases there was no obvious relationship.

Tuberculin Reactions and Examination of Sputum: Five children showed a positive reaction to tuberculin (O.T.) In only one of these was it possible to identify any pulmonary lesion, as probably tuberculous. (Case 6.) In no case were tubercle bacilli found in the sputum, although secretion obtained at bronchoscopy is routinely examined for acid-fast organisms.

Bacteriology: The reports on specimens of sputum taken through the bronchoscope showed such diversity and inconsistency as to be of no practical value in diagnosis or prognosis.

Vital Capacity: The vital capacity figures are not of great significance, as such readings become definitely higher when the patient acquires familiarity and efficiency with the procedure.

TREATMENT

Good drainage of purulent exudate and stimulation of the child's resistance to infection form the basis for treatment. The earlier the attempts are made the better the chances for prevention of serious deformities. For drainage in bronchiectasis we have (a) cough, (b) posture, and (c) bronchoscopic suction.

(a) Unless the cough is exhausting, sedatives should not be used, and then only during the stage of dry cough. Much more rational and efficacious are attempts to promote secretion. The chloride salts are the best, but children do not tolerate ammonium chloride well in doses large enough to be effective. Following the investigative work of Sunderman[5] who found that sodium chloride definitely increased the amount of sputum in cases of pneumonia, we began to use it also in any case with respiratory tract infection. Since beginning this, we rarely have to resort to opiates. Small doses of phenobarbital for general restlessness seem to be harmless so far as obtunding cough is concerned. In addition, for all cases showing embarrassment of respiration, without cyanosis, steam administered into a croup tent unquestionably quiets excessive cough without opiates.

Gabriel Tucker also pertinently calls attention to the value of position. With the child lying prone and the foot of the bed elevated six to twelve inches, "drainage" seems to be facilitated. Theoretically, this position should also obviate infection of the ears.

(b) Postural drainage seems logical but has many detractors because of interference with pulmonary ventilation, the action of the

diaphragm and the accessory muscles of respiration, when the body is semi-inverted in the usual position assumed for postural drainage. However, drainage may be worse than useless unless consideration is given to anatomical factors.

In an excellent article based on röentgenographic examination after lipiodol injection, Nelson[6] formulates the following rules for postural drainage:

Upper Zone: X-ray opacity centers above the level of first costal cartilage. Always extends to apex and may extend toward root.

Posture: Upright—Fowler position.

Middle Zone: 1. Pectoral. X-ray anteroposterior opacity lies between second and fourth ribs. Lateral x-ray opacity lies anterior to tracheal axis.

Posture: Flat on back—supine.

2. Axillary: X-ray anteroposterior opacity between second and third ribs in outer half of lung field. Lateral x-ray opacity overlies the trachea.

Posture: Right-sided lesion—flat and rotated to left side. Left-sided lesion—sitting at 45 degree angle rotated to right side.

3. Dorsal: X-ray anteroposterior opacity lies in inner half of lung field at hilum. Lateral x-ray opacity lies posterior to tracheal axis.

Posture: Flat on face—prone—with face turned to side of lesion.

Lower Zone: (a) Middle and (b) anterobasic. X-ray anteroposterior.

(a) Opacity lies between fourth rib and diaphragm (middle lobe).

(b) Opacity lies in costophrenic angle (anterior basic).

Lateral x-ray opacity lies anterior to tracheal axis overlying heart shadow.

Posture: Flat on back with foot of bed raised twelve inches.

(c) Axillary Basic: X-ray anteroposterior opacity lies below level of fourth costal cartilage in outer lung field extending to periphery. Lateral x-ray opacity lies in the line of the tracheal axis in clear space between heart and anterior surface of vertebra.

Posture: On side, opposite the lesion, with foot of bed raised twelve inches.

(d) Posterior basic: X-ray anteroposterior opacity extends below level of diaphragm. Lateral x-ray opacity lies behind tracheal axis over bodies of lower thoracic vertebra.

Posture: Prone, bent over at an angle of 45 degrees.

In thinking of bronchial drainage one is apt to consider that bronchial secretion should immediately be subject to the laws of gravity, and if the patient is inverted, in a short time actually flow out of the mouth. A moment's reflection shows that the thick tenacious mucopus secreted in bronchiectatic cavities, could not by any maneuver be made to flow. It can be encouraged to move down a bronchus, perhaps, but must be assisted by cough, or actually aspirated through the bronchoscope in order to have it brought to the mouth. Older children can learn to cough effectively, but the child under four or five will not cooperate. His struggles are apt to favor inhalation of secretion rather than to invite its expulsion. Another practical difficulty is in the type of secretion. In some cases its mucoid exceeds its purulent characteristics, making expulsion more difficult. In spite of these drawbacks, a trial of postural drainage usually should be made and the results will determine the question of continuance.

(c) Bronchoscopic Suction: Very often when a case of apparent atelectasis first comes under observation it is necessary to rule out the presence of a foreign body. Also active bronchoscopic drainage at the onset of atelectasis is definitely curative. In Maxwell's opinion, bronchoscopy in lung abscess is not likely to do much good if the cavity is draining freely into a bronchus. In our experience, however, the result with bronchoscopic drainage seems to be expedited. Since bronchoscopy at the hands of an expert is not much of an ordeal for children, if one may judge by the child's attitude, the desirability of its use can be decided in each individual case.

Maxwell advises artificial pneumothorax only in central or hilar abscesses communi-

cating with a bronchus, never when the lesion is near the pleura.

STIMULATING RESISTANCE

The agencies employed may be specific or general. The former comprise the use of vaccines, blood transfusions or adult serum. In the latter, we may include rest, fresh air and high vitamin diet. Neither type of treatment is exclusive, and each rests on an insecure scientific basis. We are convinced that rest alone is the most important of all. In the presence of anemia, transfusions almost always are of some benefit. The value of vaccines and adult serum is debatable.

No definite conclusions could be drawn as to the value of different factors in treatment of our cases. Bronchoscopies were done in all patients except two of the fatal cases. One patient has received fifty bronchoscopies over the past ten years (Case 23). Fifteen of twenty-three patients practiced postural drainage and twelve of twenty-three received autogenous vaccine. Only two patients received "lyophile" adult serum. Rest, the use of the porch in clement weather throughout the year and high vitamin diet formed part of the routine treatment. Fresh air appeared to be of value in combatting anorexia.

The great difficulty in evaluating any form of treatment is the lack of sufficiently large and carefully controlled studies. It has always seemed to us that several large clinics should pool their opportunities in a carefully coordinated attempt to secure data on a large number of cases.

We believe that hospitalization usually is desirable for effective treatment of severe types of cases, even without bronchoscopy. Rarely is it possible to control the patient in the home and to secure sufficiently prolonged rest and adequate postural drainage. The only disadvantage of hospitalization are the crossed respiratory tract infections.

None of these measures can cure a permanent dilatation. The most that can be done is to mitigate the infection before serious damage to bronchi has resulted and to prevent recurrences. Lung surgery is the court of last resort, but should not be delayed too long. If a child can be kept under observation, and if there is no tendency to progression, there is every justification for the continued use of drainage. At last analysis the fate of children who have undergone definite and permanent structural damage depends upon their "resistance to infection."

We are very greatly indebted to Dr. Eugene P. Pendergrass and Dr. Gabriel Tucker for the aid in röentgenological and bronchoscopic studies and reports. We are also most thankful for the assiduous care in follow-up work by Miss D. Elizabeth Davis and Miss Arline R. Hassmer of the Social Service Department of the University Hospital.

36th and Spruce Streets, Philadelphia.

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CANCER OF THE BREAST

Any lump on the breast should be viewed with suspicion, especially if it is not painful, J. Stewart Rodman, M.D., Philadelphia, says in his article, "Cancer of the Breast," in the January issue of *Hygeia, The Health Magazine.*

In pointing out symptoms by which cancer of the breast may be detected in its early stages, when 75 per cent of such cases can be cured, Dr. Rodman says there are two kinds of lumps that may be found on the breast, the "good" or nonmalignant kind, which is painful, and the dangerous kind, which is not painful.

When it is realized that about 12,000 deaths occur annually from cancer of the breast, the life-saving possibilities of early recognition and treatment become apparent.

If cancer occurs after the age of 45, when the greatest number of cases of cancer of the breast are observed, is not associated with any pain and is not tender when it is pressed, it should be seen at once by a physician who is trained in the diagnosis of this condition.

LEIOMYOSARCOMA OF THE ILEUM

By R. S. WIDMEYER, M. D. and A. R. K. MATHEWS, M. D.
Parkersburg, West Virginia

LEIOMYOMATOUS neoplasms of the small intestine are not common, though apparently they have been recognized with greater frequency in recent years than at any previous time. McDermott[1] states that between 1875 and 1935 not more than 22 tumors of this type were reported. He contributed an additional case to this number, and at about the same time Goldsmith[2] further augmented the total by one. It is agreed by those who have reported such cases that they are of sufficient rarity and gravity to warrant attention and publication. Therefore, having recently unexpectedly encountered a leiomyosarcoma of the ileum, we wish to report the same; and, since a review of the published case reports and discussions demonstrates a very general failure to even suspect these tumors until found at operation, it should be of value to repeat and thoughtfully consider information available in this literature.

THE AUTHORS

Doctor Widmeyer graduated from West Virginia University, 1923; University of Maryland, 1925; interned at Parkersburg City Hospital; member of the Industrial Surgeons of West Virginia. President of the Academy of Medicine of Parkersburg.

Doctor Matthews, born at London, Canada, graduated University of Western Ontario, interned at Victoria Hospital, London, England, 1929-1930; postgraduate, University of Western Ontario, 1930-1935; member American Board of Pathology, and American Society of Clinical Pathologists.

CASE REPORT

Mrs. P., age 45 years, white, married, was seen by R. S. W., in September, 1936, complaining of vaginal bleeding, general weakness, slight loss in weight and frequent burning urination. Her previous medical history was devoid of anything pertinent excepting one attack of irregular uterine bleeding with the passage of some clots during the preceding two or three months. She had had three children, the youngest being then 17 years of age. There were no symptoms at any time which were considered referable to the gastrointestinal tract.

Physical examination revealed a few small nabothian cysts in the cervix uteri with an old laceration and considerable evidence of chronic cervicitis. At the same time a palpable mass was discovered vaginally to the left and posterior to the body of the uterus. This was thought to be attached to the uterus and was diagnosed as a subserous fibromyoma. Urine examination revealed the presence of numerous pus cells.

The cervix was cauterized and the nabothian cysts punctured. Bladder irrigations and hot douches were also given and under this regime the uterine bleeding ceased and the cervix attained a much healthier appearance. She was admitted to St. Joseph's Hospital on September 13, 1936, and operated upon by Dr. R. S. Widmeyer the following day.

On opening the abdomen, the appendix and cecum were found to be tied down tightly by adhesions. The appendix was removed. The upper abdomen was packed off and with the patient in the Trendelenberg position the pelvic viscera were inspected. Grossly the uterus, tubes and ovaries were not pathological. Behind the uterus was a large oval bluish-white tumor mass about the size of a small grapefruit. This was found to be intramesenteric and firmly attached to the wall of the ileum at a point about 12 to 18 inches from the ileocecal junction. The involved portion of gut was resected and a side to side anastomosis performed. The abdomen was drained and closed in the usual manner. The

postoperative course was good, convalescence was normal, and now 19 months after operation the patient is well, has regained her usual weight and shows nothing suggestive of complications or sequelæ.

The pathological report (A. R. K. M.) describes a large tumor (Fig. 1) measuring nine by six by five cm. attached to a segment of small intestine measuring 10 cm. in length. The mucosa of the gut is intact and the lumen is not distorted and does not communicate with the tumor. The central part of the growth shows degenerating friable tissue with some hemorrhage. Microscopically the structure is quite cellular with typical large spindle-shaped cells and hyperchromatic nuclei (Fig. 2). There are scattered areas of necrosis and hemorrhage. An indefinite capsule appears to exist and spindle cells are extending into this structure. The cell morphology is highly suggestive of smooth muscle structure and this opinion is substantiated by Van Gieson's staining technique. A diagnosis of leiomyosarcoma of the ileum was given on the basis of these findings.

Fig. 1—"Leiomyosarcoma of Ileum." Surgical specimen: (A) External appearance; (B) Internal appearance.

DISCUSSION

These tumors arise from the smooth muscle tissue of the intestinal wall. It has been suggested by Demel[3], as cited by Brink and Laing[4], that the subserous variety arise from the muscularis propria and that the submucous variety arise from the muscularis mucosa. This seems a plausible theory. These authors also state that the proportion of subserous to submucous types is about three to one.

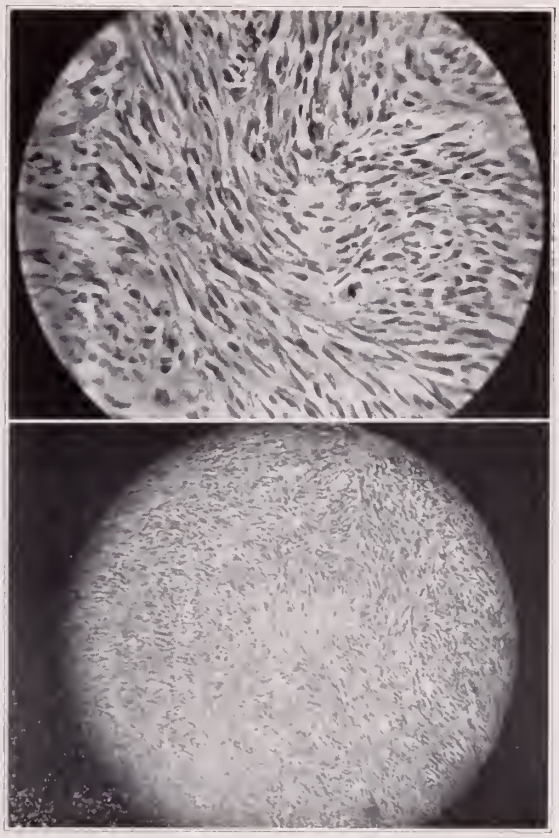

Fig. 2—"Leiomyosarcoma of Ileum." Microscopic appearance of cell structure: (A) Magnification by 100; (B) Magnification by 950.

In some of the reported cases of leiomyoma of the small intestine the exact location has not been designated, but there is a definite preponderance of those which have occurred in the jejunum with only three cases in the ileum and two in the duodenum being recorded.

There is conflicting evidence as to their actual frequency. Dixon and Steward[5] draw attention to their scarcity, noting that King in 1917, in a Mayo Clinic series of 44,000 lapar-

otomies, reported only one benign tumor of the small intestine, and that Mallory in 4,165 routine postmortems found only 11 such tumors. On the other hand, Jones[6] points out that Rieniets in a systematic search for leiomyomatous tumors of the stomach found 43 of such in 32 of 200 stomachs removed at routine autopsies. This would seem to indicate that tumors of this type may be more common in the gastrointestinal tract than is generally believed. Still most of Rieniets' tumors were quite small and not responsible for any clinical symptoms, and it is probable that a good percentage of them would have remained in that category.

It is generally recognized that leiomyomata of the intestine grow slowly, that there is a tendency to cystic degeneration, that they will eventually reach a considerable size and that they are of relatively low grade malignancy and metastasize late.[7 8 9 10] Klopp and Crawford[8] state that neither the gross nor microscopic features are reliable indices of malignancy, and report a case with local recurrence 13 years after removal of the primary growth while the liver at the end of this time was still not involved. Jones[6] also states that some of these tumors which microscopically appear to be benign have later produced metastases. This forces the reluctant conclusions that microscopical examination has often been misleading, but we still believe that careful and competent pathological investigation will in most instances develop a reasonably accurate opinion as to the malignant propensities.

In addition to the possibilities of metastases to the liver, peritoneum or mesenteric lymph nodes, there are certain grave complications which add to the importance of these tumors. These are: intestinal obstruction from angulation or twisting of the bowel, from adhesions to subserous tumors, from the projecting bulk of the submucous type or from acute or chronic intussusception caused by their presence; ulceration of the mucosa with intestinal bleeding and secondary anemia, and perforation and peritonitis as reported by Cattell and Woodbridge.[7]

The question of diagnosis is the most unsatisfactory phase of the subject. Dixon and Steward[5] have discussed this capably in conjunction with intestinal fibromata. We must recognize that such tumors, particularly those of subserous situation, may be practically silent up to the time that they initiate an acute abdominal mishap, or that they may be found purely accidentally with no referable clinical disturbance, as demonstrated in the case which we have presented.

In those cases which do give out warning signals of their presence the one thing that seems important and most suggestive is recurring attacks of partial intermittent bowel obstruction with crampy pain and sometimes vomiting. Such a story should prompt a careful investigation for obscure intestinal bleeding and for a palpable tumor. These, of course may not be elicited, and even if they are, a diagnosis is not made, since other conditions might act similarly. In differentiating, Joyce[9] points out that a freely movable mass which slips away from the fingers is probably in the jejunum or ileum since tumors in other parts of the intestinal tract are relatively fixed. He also draws attention to the failure of x-ray to demonstrate tumors of the small bowel especially between the duodenum and the lower ileum. He suggests as a modification in these examinations that hourly fluoroscopic observations should be made until the barium reaches the cecum.

EARLY OPERATION INDICATED

These cases seem to offer a challenge to the diagnostician because early diagnosis and removal would be so much more desirable. First, since metastasis is so late, early operation should often result in complete cure, and secondly, postponement of operation allows complications to become serious. It is a matter of recorded fact that operation has seldom been done until obstruction was present and at a time when conditions were much less favorable for surgical success. The vagueness of the clinical symptoms and the hazards of making a positive preoperative diagnosis are readily admitted, but we believe that

recognition of the fact that such a picture may be due to the presence of a leiomyoma of the bowel would frequently allow a more intelligent and timely surgical approach.

SUMMARY

A case of leiomyosarcoma of the ileum with no symptoms of intestinal disturbance is reported.

Data as to the origin, frequency and character of these tumors is reviewed.

The clinical features and questions pertaining to diagnosis are commented upon.

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PRECAUTIONS

The very precautions that Junior's parents take to protect his health during the winter months may be responsible for his catching cold, says Jay N. Fishbein, M. D., Providence, R. I., in his article, "Why Children Catch Colds," in the January issue of *Hygeia, The Health Magazine*.

An anxious mother often forces her child to spend many minutes in an overheated house being tucked into his wraps. She warns him against catching other children's colds and against playing in the snow, then sends him, overdressed, outdoors "to play." Because he is not given an opportunity of developing any natural immunity, a cold follows.

Parents should, however, determine whether there also are physical causes for the occurrence of frequent colds, such as diseased tonsils or adenoids or infected sinuses. The pampered child often may be undernourished because he is allowed to eat unbalanced meals, and he may lack proper rest because he persuades his parents to delay his bedtime.

Tuberculosis Abstracts

Furnished Through the Courtesy of the West Virginia Tuberculosis Association

What becomes of the tuberculosis patient after the doctor refers him to the sanatorium? In many communities sanatorium officials send progress reports to the practicing physician from time to time. Sometimes, however, the doctor is revisited by the patient whom he sent to the sanatorium months or years before, asking advice as to his future course. He may wish particular advice on the kind of work he may do safely. It may be helpful, therefore, to learn from a qualified official what provisions are made by the state for counseling and training tuberculosis patients for suitable employment. Extracts of a paper by H. D. Hicker, Chief of the Bureau of Vocational Rehabilitation of California, follow:

COUNSELING THE TUBERCULOSIS PATIENT

Not only medical skill is necessary to restore the tuberculosis patient to a useful life, but also the aid of mental hygiene, social welfare, education, training and placement services. Each patient must be treated as an individual, yet one must remember that the individual is not an assembly of parts and functions and that, therefore, he must be treated as a whole. Consequently all workers in the tuberculosis field must coordinate their services. Vocational rehabilitation is closely linked with medical and social services.

Under the Federal Rehabilitation Act of 1920 and the subsequent state rehabilitation acts, tens of thousands of men and women with physical disabilities of various types have achieved satisfactory vocational adjustment. It has been amply demonstrated that the rehabilitation program of vocational counseling, training and other related services can and does make physically impaired persons employable. Yet comparatively few tuberculosis patients have received the benefits of the Rehabilitation Service. Among the reasons given for this lack are that the Rehabilitation Service has shared the widespread fear of this disease and the belief that very few cases recover sufficiently to become employable. Another reason is that tuberculosis patients represent only a small fraction of the large number of handicapped persons and that resources are limited. The remedy for this lies in broadening the scope of rehabilitation service through legislation.

President's Page

It is with a deep sense of responsibility that I assume the duties as your president and it is only the inspiration that comes from the fine work of your past leaders that I can find confidence to carry on. Dr. Waddell has given you a fine administration. His conservative, careful, but fearless attitude toward our many problems, has left the Association a harmonious body better ready to solve the issues confronting us.

One of my close friends recently advised me to confine my efforts in the Association to the improvement of scientific medicine. Too much emphasis cannot be placed on this phase of our work. However, our place is too important in planning the adequate medical care of the indigent, the medically indigent, and the low wage earner, not to give this responsibility most careful consideration now. Social reforms are here. We cannot and should not evade them. Our great profession has always measured up both in our scientific advances, and in caring for the poor and needy.

Your splendid Committee on Low Cost Study, headed by Dr. Wilkinson, Dr. Robert Reed, Dr. John Moore, Dr. R. O. Rogers and Dr. Philip Johnson has given many hours and days to a careful study of these problems. Their conclusions and plans have been accepted by your council and are forwarded to you for action. It is my desire and earnest request that you study these principles carefully and apply them to your local community. *Do not act hurriedly.* Hold conferences with industry and labor. Get better acquainted with your local Department of Public Assistance and other responsible public officers. Try to influence the entire membership of your county society to become interested, and then adopt the plan best suited for your community, provided the plan adopted is the plan controlled by the doctor.

The medical profession of this country is on trial. A small percentage of the public and some of the lay magazines are offering criticism of our attitude, a part of which may be just. When many state health departments report that from ten to twenty per cent of deaths have had no medical service, it is appropriate to give the distribution of medical service serious thought.

I have faith in our profession. There is fine leadership in our State Association and in the county societies. I believe they will face these vital economic problems with the unselfish ability, and honesty that has always been true of the real "Doctor."

Ray M. Bobbitt

President.

West Virginia Medical Journal

P. O. Box 787
Public Library Building
CHARLESTON, WEST VIRGINIA

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Business Manager

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THE NEW YEAR

The New Year presents the Association with a new president. On January first the term of Dr. C. W. Waddell will end and Dr. Ray M. Bobbitt will take over the reins of office. The welfare of organized medicine in

DR. C. W. WADDELL

West Virginia will pass from one capable administration to another.

To Dr. Waddell we extend our sincere congratulations and commendation for his eventful year of unselfish service to the medical profession of this state. We think that it was particularly fitting that during his administration he was appointed by Governor Holt as a member of the State Public Assistance Advisory Council. During the latter months of his term it was particularly inspiring to

DR. RAY M. BOBBITT

witness the close cooperation between Dr. Waddell and our president-elect in coping with the troublesome incident to the threat of socialized medicine; cooperation which we know will continue through 1939 with Dr. Waddell as Council chairman.

To Dr. Bobbitt we express our heartiest good wishes for a successful administration and our confidence in his judgment and ability. With many years of Association service behind him, we know that he will become one of our outstanding leaders.

To Dr. Waddell, to Dr. Bobbitt, and to the officers and members of the Association we wish happiness and prosperity for the New Year.

THE FEMALE OF THE SPECIES

Whether we like it or not, it becomes more and more apparent with the passing of the years that females make better newspaper publicity than males. While we offer no solution for this interesting phenomenon, we suggest it as a topic for the scientific consideration of some of our younger members who may still find a little time occasionally on their hands. Possibly Kipling's dictum as to the relative deadliness of the sexes might explain the reportorial attraction of the female.

For the sake of discussion, let us consider this matter of child brides. These little ladies first came into prominence about the time Kathrine Mayo published "Mother India." From that day to the present time, every little country lass who has gotten "hitched" under the age of consent has spent her honeymoon fighting off newspaper photographers. That's all right. We're not kicking about child bride publicity. What we resent is the utter lack of newspaper consideration given to child grooms.

Personally we have never seen a picture or read a stick about a child groom. Neither have we ever found any rotogravure consideration given to a male fan dancer or a masculine strip tease. It seems like the only way a man can get his picture in the newspaper is either to kill his sweetie or to bring anti-trust charges against the American Medical Association, and even some of their figures are no more shapely than our own.

Apparently the male figure does not have the proper lure, yet we can think of no scientific basis for this phenomenon. This presents an interesting and undeveloped field for proper research. Oh, well . . . just forget it.

HAIL. CHEWING GUM!

Beginning with our February issue next month, the JOURNAL will carry a half-page advertisement of the National Association of Chewing Gum Manufacturers. And thereby hangs a tale.

Negotiations with the chewing gum folks began last October. They were but casually interested. They pointed out that physicians were not interested in chewing gum and that an advertisement in a journal devoted to medical science would be of little or no value. Our problem, therefore, was to develop and display a lively scientific interest in this product.

Selecting 10 key members of our Association in different parts of the state, we wrote and asked them if they could make a conscientious statement regarding the therapeutic value of gum. If so, we requested that they write out such statements and send them to our advertising bureau in Chicago. They all complied, and sent copies of their statements to the JOURNAL. These statements, we might point out, were so convincing that most of the members of the JOURNAL staff have since become ardent gum chewers.

In welcoming the National Association of Chewing Gum Manufacturers to the advertising columns of this JOURNAL, we also wish to express our appreciation to the 10 Association members whose convincing arguments made this contract possible. If any samples are forthcoming, they will be distributed among these sponsors. This all goes to prove the old adage that a little help goes a long way. If one-fourth of our members would limit their contacts with detail men to those whose firms advertise in the WEST VIRGINIA MEDICAL JOURNAL, we could double our JOURNAL profit the first year.

THE PREVENTION OF PARESIS

At the present time, a conservative estimate of the number of persons in West Virginia suspected of having syphilis ranges from 75,000 to 100,000. It is quite likely that without any treatment, twenty-five per cent of these suspected individuals will develop syphilis of the central nervous system and five per cent will develop paresis or, in other words, will be candidates for treatment in either state or private institutions for the insane. A recent survey of the forty-five public

clinics conducted by the State Health Department indicates that about three hundred of the patients under treatment at the present time have neurosyphilis. Private physicians are probably treating at least this many if not more. The clinics operated by the various health departments are well prepared to treat early and latent cases of syphilis but are not prepared to supply the generally accepted treatment for neurosyphilis and paresis in particular. Therefore, it is obvious that in West Virginia there are no facilities at the present time for the treatment of the indigent individual who develops paresis.

Viewed from the other side of the problem, it is estimated that ten to twelve per cent of the inmates in our present institutions for the treatment of the insane are present as a direct result of syphilis of the central nervous system. On the basis of this figure from these institutions, practically four hundred inmates now under the care of the state are in their present situation through this infection and must be maintained at state expense, in most instances for the remainder of their lives. It is quite obvious that succeeding years will see additional recruits for the paretic group to replace those individuals who die.

This matter has been presented to the Syphilis Committee of the West Virginia State Medical Association for its consideration. It has been deemed by this committee not feasible to attempt to treat all indigents having neurosyphilis, over and above the treatment available at the various treatment centers. It is proposed, however, to single out patients from those under treatment at these clinics who either have paresis or who from physical and serological findings are apparently potential paretics. It is especially important that patients who show early psychiatric manifestations of the disease or whose spinal fluid exhibits the paretic formula should receive treatment which would prevent the progress of their disease process. Therefore, it has been recommended by the Committee that the directors of the various clinics furnish for the approval of the Director of the Bureau of Venereal Diseases, the records of such selected cases, suitable for the administration of malaria, either for the treatment of definitely developed paresis or the treatment of potential paretics. It has been further recommended that such patients be hospitalized at one of the state institutions where there is already available space and personnel for the management of therapeutic malaria. It is possible that the cost of hospitalization of these patients can be met by the use of Department of Public Assistance funds, provided the State Board of Control can grant admission to such cases at the minimum rate possible under existing obligations. The committee believes that about thirty hospital beds will be necessary at one time for this type of work. The turnover can be fairly rapid as most patients would not be in the hospital longer than three months.

The committee urges that such patients be hospitalized only in institutions which have personnel available who are entirely familiar with the management of therapeutic malaria. It is pointed out that the application of this useful therapeutic agent is not without danger and should be so carefully safeguarded that the state need have no hesitancy in accepting such patients for treatment.

To summarize: The West Virginia State Medical Association, through its Syphilis Committee, has recognized the need for some unified effort to diminish the number of paretics developing in the usual case-load of syphilitics under treatment at the various treatment centers. The problem is extensive and can be solved only by the cooperation of the State Health Department, the State Medical Association, the Department of Public Assistance and the State Board of Control. The latter two agencies are asked to cooperate by furnishing funds and bed space for such patients at the lowest minimal rate allowed. If this can be brought about, the State Health Department through its Bureau of Venereal Diseases, will select cases suitable for such preventive treatment and will carry on their follow-up treatment after discharge.

TWENTY-FIVE YEARS AGO

(Taken from the November, 1913 Journal)

JOURNAL authors twenty-five years ago were: Dr. J. W. McDonald of Fairmont on "Treatment of Fractures of Long Bones"; S. L. Jepson of Wheeling on "Smallpox—Diagnosis and Sanitary Control"; H. G. Tonkin of Martinsburg on "The Use of Pituitrin in Obstetrics"; Arthur MacDonald of Washington, D. C., honorary president of the "Third International Congress of Criminal Anthropology" of Europe, on "Principles of Criminal Anthropology"; H. W. Keatley and R. M. Bobbitt of Huntington on "Report of Five Cases of Dementia Praecox Treated by Nuclein Solution."

The following doctors received licenses at the recent meeting of the State Board:

William P. Black, Rupert, W. Va.; R. H. Cather, Flemington, W. Va.; Joseph U. Rohr, Catonsville, Md.; Ivy G. Shirkey, Sissonville, W. Va.; Charles A. Young, Rio, W. Va.; W. J. Judy, Glen Falls, W. Va.; O. R. Kackley, Pleasant City, Ohio; E. A. Teets, Buckhannon, W. Va.; R. K. Sell, Hanover, Pa.

Questions for the State Board Examination on "Physiology and Histology" were prepared by Dr. H. M. Rymer, now of Ripley, W. Va. Twenty-five years ago, these questions read as follows:

1. Large intestine: describe it and give function; 2. Heart sounds: describe them and give cause; 3. Seventh or facial nerve: give origin, distribution and function; 4. Discuss the composition, formation and circulation of lymph; 5. Classify and give function of white blood corpuscles; 6. "Pupils react to light and accommodation." Give the physiology; 7. Name three ductless glands, and describe their function; 8. Describe the structures of the lobule of the liver; 9. Describe histology of kidneys.

* * * *

NEWS ITEMS

The editor of the "JOURNAL" (S. L. Jepson) made a recent visit to Charleston on official business and had the pleasure of meeting several Charleston physicians at the hotel, but was so rushed that he had no time for calls.

Dr. J. M. Barr of Wierton is spending a few weeks at "The Pines" in Asheville, N. C., on account of a little breakdown in health, occasioned by overwork and forgetfulness of his own physical condition.

General News

COUNCIL MEETING

The Council of the West Virginia State Medical Association met in the headquarters office, Charleston, on Thursday, December 15, 1938. The meeting was called to order at 10:35 a. m. by Dr. C. W. Waddell, acting chairman. On motion, duly seconded, Doctor Waddell was elected to act as the permanent chairman of the meeting.

Councillors present were: Doctors Waddell, R. J. Wilkinson, R. K. Buford, Ralph Hogshead, J. R. McClung, Welch England, B. S. Brake, Fred E. Brammer, W. G. Harper, R. J. Reed, Jr., Philip Johnson, and Dr. Charles G. Morgan. Others present were Dr. Ray M. Bobbitt, president-elect; Dr. T. M. Barber, treasurer; Dr. Walter E. Vest, AMA delegate; Dr. A. P. Butt, councillor-elect; Dr. G. R. Maxwell, Dr. B. I. Golden, and Joe W. Savage, ex-officio secretary.

Minutes of the previous meeting were approved as read.

The report of the secretary (published on page 46) was read by Mr. Savage and was accepted on motion of Doctor Reed, seconded by Doctor Wilkinson. The headquarters office was authorized to purchase the dictaphone mentioned in Mr. Savage's report.

The report of the Low Cost Study Committee (published on page 44) was read by Dr. R. J. Wilkinson, chairman. The report of the committee was discussed at considerable length by the councillors present and the six recommendations embodied in the report were adopted in order. Then on motion of Doctor Reed, variously seconded, the report was adopted as a whole.

Doctor Wilkinson then made the following motion:

1. That the executive secretary be instructed to transmit to the county societies the findings and recommendations of the Council regarding the medically indigent and the low income groups.

2. That the State Association will render every possible assistance to the county societies in working out a program best suited to their respective needs, as:

a. Hospital insurance.

b. Medical service bureaus.

c. Medical insurance.

This motion was seconded by Doctor Johnson and carried.

Doctor Bobbitt suggested that the Low Cost Study Committee be retained and that it continue to serve as an advisory committee to give aid and assistance to county medical societies in carrying out the recommendations embodied in the committee's report. This suggestion was made in the form of a motion, duly seconded, and carried.

Doctor Maxwell addressed the Council on behalf of the State Tuberculosis Association and requested the approval of the Council relative to using Powers x-ray equipment to do mass x-rays on positive tuberculosis reactors. After much discussion and questions, Doctor Wilkinson moved that this matter be referred to the local county medical societies. This motion was seconded by Doctor Brammer and carried.

Doctor Vest advised the Council that the Association House of Delegates would be requested to set up a state-wide tuberculosis committee at their 1939 meeting in July.

Doctor Golden of Elkins was accorded the privilege of the floor and made the following statement:

"At the October meeting of your Council you listened to charges of unethical charges made against me by the Marion County Medical Society. You instructed that society that it must carry its charges before the Barbour-Randolph-Tucker Medical Society, stating that according to the Constitution such charges must be placed before the county society to which the member belongs, for verification. Furthermore, you ordered that such charges having been passed upon by the Barbour-Randolph-Tucker Society could then be presented to the Council for consideration and action.

"The Council specifically stated that this matter was not a part of its jurisdiction, nevertheless mention of the above charges were included in the minutes of the meeting and were published in the November issue of the State Medical Journal.

"The officers of the Barbour-Randolph-Tucker Society notified the Marion County Society that they would listen to any and all evidence preferred against me at any time the latter society was prepared to do so and ample time was given for such a hearing. No charges or evidence were presented.

"In this particular instance this is a reflection not only on me and the group of men associated with me, but likewise on our local county society. Certainly a group of educated and intelligent professional men should make an effort to control and deprecate malicious propaganda wherever it may evidence itself.

"That the above statements were published in the State Journal with the Council report, I am sure was in error. That this should be corrected promptly I am satisfied that you members of the Council and the profession will agree.

"In closing I wish to make a plea for all members of the profession who have in the past, or are at present, suffering from malicious propaganda. I believe that in fairness to our profession, efforts should be made to correct this cancerous condition, which does much harm to the vitality of the organization and the effectiveness of the profession, but for some unknown reason has been permitted to carry on unabated.

"Thank you."

In reply to various questions, Doctor Golden said that he had no representatives and that he had never solicited any work of any kind. Doctor Harper of the B-R-T Society reported that they had held their meeting over for several weeks awaiting charges, but that no charges had been preferred against Doctor Golden. At the suggestion of Doctor Reed, it was agreed that the minutes of the meeting should show that no evidence had been presented to substantiate the charges recorded in the minutes of the October 2, 1938, meeting of the Council.

On motion of Doctor Buford the Council recessed at 12:45 p. m. to the Daniel Boone Hotel where luncheon was served.

The Council reconvened at the Association headquarters at 2:10 p. m. Doctor Wilkinson called the attention of the Council to the recommendation in his committee report for the appointment of an advisory committee to assist the county medical societies in carrying out the recommendations in the report. Doctor Morgan moved that the Low Cost Study Committee consisting of Doctors Wilkinson, R. O. Rogers, R. V. Shanklin, Philip Johnson, R. J. Reed, Jr., and the president ex-officio, should be authorized to serve in this capacity. This motion prevailed.

At the suggestion of Doctor Bobbitt, Doctor Wilkinson moved that in the establishment of hospital insurance plans, each county medical society shall decide for itself whether pathology, röentgenology, and anesthesia are medical service or hospital service, in its particular locality. The motion was seconded by Doctor Reed and carried.

On motion of Doctor England, Doctor J. G.

Rogers of Parkersburg was elected to honorary life membership in the Association.

Mr. Savage read the following petition signed by six practicing physicians in the city of Beckley:

"We are requesting that some action be taken at once, in regard to the list practice of the hospitals in this section. We approve a community hospital plan that does not interfere in any way with the relationship between the patient and the physician."

After a brief discussion, Doctor Buford offered the following resolution:

"*Be It Resolved,* That the Council of the West Virginia State Medical Association hereby officially goes on record as disapproving the issuance of hospital list contracts in cities, towns, and other competitive areas where licensed medical doctors are engaged in the private practice of medicine, and

"*Be It Further Resolved,* That the Council recommends the establishment of non-profit community hospital insurance plans, as a substitute for the above described hospital list contracts which may be in operation at the present time."

This resolution was seconded by Doctor Brake and carried.

There followed a discussion of proposed legislation. On motion of Doctor England, variously seconded, the legislative committee was given power to act for the Association during the 1939 session. While presenting his motion, Doctor England asked that it be understood that the legislative committee would act with the president and the secretary of the State Association.

On motion of Doctor Reed, seconded by Doctor Buford, the salary of Mr. Savage was increased fifty dollars per month, effective January 1, 1939.

On motion of Doctor Brammer, duly seconded, the Council voted authority for Association sponsorship of the postgraduate conferences in obstetrics and pediatrics during the summer of 1939.

Mr. Savage presented a request from the American Medical Association that our Association appoint a committee on industrial medicine. On motion of Doctor Brammer, duly seconded, the president of the Association was authorized to appoint such a committee.

A suggestion was received from the American Legion relative to the establishment of a state-wide blood donors library or bank at the Association headquarters in Charleston. On motion of Doctor Morgan, seconded by Doctor Reed, Mr. Savage was named as a committee of one to further investigate this suggestion and to report back to the Council at a later date.

Doctor Wilkinson presented a request from the Federal Farm Security Association relative to providing prepayment medical service to farmers on relief. Doctor Wilkinson moved that this matter be referred to the county medical societies for whatever action they might see fit to take. This motion was seconded and carried. On motion of Doctor Hogshead, duly seconded, this matter was also referred to the Low Cost Study Committee for further study and investigation.

Doctor Waddell spoke briefly of the splendid services rendered to the Association and to the Council by Doctor W. G. Harper of Elkins, West Virginia, whose term expires on December 31 and who was attending his last meeting as a councillor. Doctor Waddell also welcomed Doctor A. P. Butt to the Council as its newest member. Both Doctor Butt and Doctor Harper made appropriate responses.

Doctor Waddell also expressed the appreciation of the Council to Dr. C. G. Morgan of Moundsville, who was retiring from the Council after serving his allotted two years, following his term as Association president. Doctor Morgan made a very fitting and a very appropriate response.

On motion of Doctor Brake, variously seconded, a vote of thanks and appreciation was extended to Doctor Waddell for his excellent work as president of the Association.

There being no further business to come before the Council, the meeting adjourned at four o'clock p. m.

JOE W. SAVAGE,
Executive Secretary.

LOW COST STUDY COMMITTEE

Before submitting our report on low cost study it might be well to outline some of the more pertinent facts pertaining to this study.

Your committee has carefully considered all phases of the subject, especially as it affects West Virginia and is persuaded that it is incumbent upon our profession to recognize the urgent need for action, especially as regards the low income group. This study revealed the rather startling fact that 46.5 per cent of the families in our State have an income of $1000 or less, while 96.5 per cent have less than $4000 per year. It was the unanimous opinion of your committee, after hearing Dr. Vest's report on the A. M. A. Committee meeting with the Washington Interdepartmental Committee, that

unless the medical profession is willing to assume the responsibility of working out this rather complex problem we may expect the Federal Government to enact legislation which obviously is not to be desired.

It seems to your committee that organized medicine in West Virginia can best demonstrate this leadership by authorizing each county medical society, or a group of county societies, to work out a program that best suits the local needs, subject to the approval of, and with the assistance of, the State Association or a committee designated by the Association. This principle needs no elaboration for it is obvious that a plan for the mining districts would not be applicable to either the agricultural or manufacturing areas.

The medically indigent in our state consist of those on direct relief as well as those on W. P. A. work, the total number has now reached 87,562. When it is considered that most of these people are heads of families then we can realize the tremendous work that has been done by our State Committee on relief and further, that before any change can be made in our present program it will be necessary for legislation to provide additional funds. The physicians of our State have done a splendid job of caring for these unfortunates and it is to be hoped that this splendid work will continue until relief is obtained.

For the low income group we consider hospital insurance as being absolutely necessary, for after all hospitalization is one of the major items in the cost of medical care. Any such plan should first, include the entire group of employees, whether large or small, and second, this insurance must be collected by monthly check off. Unless this plan is followed the cost becomes far too high and defeats the very thing we are working for. The cost of operating hospital insurance units is in indirect proportion to the number of members, consequently it is desirable to have a minimum of 6000 members. There are many insurance plans in operation, and in most instances are being operated successfully, so it will be a simple matter to supply local medical societies with this information.

After hospital insurance is assured your committee felt that an ideal arrangement would be for the local society to operate a service bureau; the function of this agency would be to fix professional fees should either the patient or physician desire this service. This affords a protection to both parties involved by insuring against overcharging for work performed and at the same time assists in collections by arranging monthly payments to cover professional fees. There are several such agencies in operation, and perhaps the most satisfactory one is the Oklahoma County Plan. After a personal interview with several leading physicians in Oklahoma City I am inclined to believe the greatest advantage in such a bureau lies in the fact that it exists. It is helpful in selling hospital insurance to both the employer and employee but is rarely used. Detailed outline of this and other plans are available for the local societies.

Undoubtedly many of our county units will prefer the idea of medical insurance but it must be remembered that the principle of free choice of hospital and physician must be adhered to. All money so collected should be handled by a committee consisting of medical, lay and industrial representatives thereby eliminating misunderstandings that might and will at times arise. The same principle regarding the employee groups and check off is equally as applicable here as in the hospital insurance plan. The question of fixed fees for professional work is to say the least controversial and in the final analysis must be left to the local society to handle.

At a meeting of our Cabell County Medical Committee with representatives of our larger industrial concerns I was struck by their almost unanimous opinion that their employees would only be interested in a plan that provided both hospitalization and medical care. If such a plan is contemplated it might be advisable to issue a word of warning. The deduction or check off can be in one sum but unquestionably the hospital and professional funds should be carried as separate accounts. This can be easily accomplished by determining the percentage for each service as 55 per cent for hospital and 45 per cent for professional fees. In either event should the bills be in excess of the available money then they can be prorated proportionately (Shamlin plan).

Another medical insurance plan that merits mention is where industry elects to handle the check off by a committee representing the employer and employee. Usually a fixed fee basis will be advantageous under such a plan because of the lack of professional supervision unless perhaps the service bureau is used for this purpose. In any event the money will be paid directly to the physician or hospital and will not be under the society's direction. This plan may be feasible in large organizations, but obviously is unworkable in smaller plants be-

cause the fund is not sufficiently large to provide for any unusual sickness. A medical insurance plan might find the service bureau most helpful in fixing charges for professional service and this is especially true where disagreements arise over these charges for after all, the physician must abide by the bureau's findings.

In any form of medical insurance the question naturally arises as to who is eligible for the protection. I think it might be well for this Council to outline the maximum income, for both single and married men, which will entitle them to this protection. Since the Federal Government has indicated that they consider a man with family and an annual income of $3000 or less as being eligible for this insurance, you can readily see the problem confronting us. It occurs to me that $1800 per year for married men and $900 for single men would more nearly be equitable, but here again we must remember that 76.0 families have an annual income of $1750.00 or less.

In attempting to sell the idea of hospital and medical insurance it is well to remember that most industrial organizations are now carrying various protection for their employees, as sick insurance (group plan) relief plans, etc., so much so that the average employee is reluctant to sign for any other check off unless it can be shown conclusively that he is to be profited. In many instances both types of protection (hospital and medical protection) can be had for less than he is now paying for other types of insurance which do not include his family. Also, remember if the Federal Government exercises this power it will not be optional and the cost of operation will be enormous, increasing the amount for each individual so protected and more than likely add another burden on the tax-ridden employer.

Your committee submits the following report and moves its adoption:

1. The committee agrees to the principle that the medical care of the medically indigent is a community responsibility. Lay education will be necessary to bring communities to the full realization of this responsibility. Probably the most effective way this can be brought about is through the employment of full time county health officers and the establishment of full time health units for each county or group of counties.

2. The problem of providing care for the medically indigent and low income groups should be left to each county society to work out whatever program may best suit its local needs, subject to the approval of the State Association.

3. If an agreement is reached between the conference committee of the American Medical Association and the Interdepartmental Committee of the Federal Government, on the proposed National Health Program, we hope the Council will urge every Association member to actively support this program and to use his influence with our congressmen and members of the legislature, to secure funds in West Virginia for care of the medically indigent, that will be made available if and when the National Health Program is enacted into law. Our present set-up cannot be improved upon until additional funds are made available, and until this transpires we urge the medical profession to continue to cooperate as they have in the past.

4. For those who are in the low income group, but who are not medically indigent, we recommend hospital insurance. All hospital insurance plans, however, should be operated as community projects, and on a non-profit basis. To supplement hospital insurance, we recommend the establishment of medical service bureaus in communities large enough to support such bureaus. These medical service bureaus should be owned and operated by the county medical societies.

5. As a possible alternate for medical service bureaus, the committee recommends prepayment insurance for medical and surgical care. It is understood, of course, that such plans would provide free choice of physician and hospital, and that all money collected by the plan above the overhead cost would be distributed proportionately among the doctors who rendered service. The committee feels that any prepayment insurance plan for medical and surgical service should have lay and industrial representation on its governing board.

6. And the committee recommends that the Council appoint or authorize the appointment of an advisory committee to assist the county medical societies in carrying out any of these above recommendations in which they might be interested.

R. J. WILKINSON, *Chairman.*

SECRETARY'S REPORT

Before this meeting adjourns, the field of medical economics, particularly socialized medicine from a state and national viewpoint, will be adequately covered by Dr. R. J. Wilkinson and his Low Cost Study Committee. Hence this subject is passed over. This report will deal briefly with a few important

matters which have developed since my last report to this Council at the White Sulphur Springs meeting in July.

At the special meeting of the Council on October 2, 1938, an appropriation to match funds with the Monongalia County Medical Society to fight their local privilege tax on physicians was authorized. In late November the Monongalia County Medical Society was successful in securing an injunction against the City of Morgantown, restraining the city from collecting this tax. The injunction was granted by Judge Minter L. Wilson in the Monongalia County Circuit Court. Within the past 10 days the attorney for the City of Morgantown has signified his intention of appealing Judge Wilson's ruling to the State Supreme Court. The appropriation authorized by this Council will probably not be called for until the case is terminated.

Within the past two weeks, the headquarters office has received a petition signed by six practicing physicians of Beckley requesting that action be taken toward stopping hospital list practice within the confines of the city. It is our understanding here that an attempt is being made to establish a community hospital insurance plan in Beckley, and that the proposed plan cannot compete with hospital list practice. The petition of the Beckley doctors will be presented under the head of new business.

At the Council meeting here on December 16, 1937, Dr. Buford requested that the Association give financial assistance to the Kanawha Medical Society in bringing an injunction suit against Katie Bunch, a vitamin and health food purveyor operating in Kanawha and Wood counties under the direction of W. B. Richardson, Kansas City osteopath. On motion of Dr. Brammer, seconded by Dr. Wilkinson, the Council voted to match the expenditure of the Kanawha Medical Society in this case in an amount not to exceed $300. While no bill has as yet been rendered, the Bunch case is now closed and a perpetual injunction was entered against her on November 15, 1938. The defendant has already left West Virginia and is now in Miami, Florida.

REHABILITATION PROGRAM

I feel the Council will be interested to know that our West Virginia rehabilitation program is continuing to attract outside attention. During the past month, representatives of the federal government and of the joint legislative committee of the State of New York have been here to study our plan. At the government's public welfare meeting in Washington last week, there were indications that a nation-wide rehabilitation program would be undertaken, based on our West Virginia plan. This office has had much recent correspondence with the chairman and the counsel for the New York Legislative Committee in regard to our system of medical guidance and advisory control. This committee is now preparing a bill to present to the New York legislature which will set up, if adopted, a rehabilitation program almost identical to our own.

MEMBERSHIP

Membership and Finance: Association membership during the past 12 months has increased from 1184 to 1242, an increase of 58 members. At last year's Council meeting we had 37 delinquent members. This year we have 35. In the year 1937, we took in 114 new members of the Association. During the past 12 months we have taken in 123 new members. We now have 15 societies 100 per cent paid up. The societies in this select group are Barbour-Randolph-Tucker, Brooke, Central West Virginia, Doddridge, Eastern Panhandle, Potomac Valley, Harrison, Mercer, Mingo, Monongalia, Preston, Raleigh, Taylor, Wetzel and Wyoming. Special mention should also be given to the Cabell society with 14 new members during the year, and the Fayette society with 10 new members and only one delinquent.

FINANCIAL STANDING

The assets of the Association have been increased approximately $2,000 to $31,000 during the year. In addition, we are winding up the year 1938 with approximately $2500 in cash on hand. THE WEST VIRGINIA MEDICAL JOURNAL will show a profit for the year between $1300 and $1500. The total earnings of the JOURNAL since starting from scratch in 1927 have now reached $10,973.61.

The work of this office continues to increase each year, as new committees are created and new activities undertaken. On numerous occasions during the past year it has been necessary to employ additional secretarial help for short periods of time, in order to keep the work of this office up-to-date. About three weeks ago we had a dictaphone installed in order to try it out as a time-saving device. In handling our correspondence, the use of this machine has cut down our time approximately one-third. We believe the purchase of this machine will greatly add to the efficiency of the headquarters office and will postpone for a number of years the necessity of employing additional help. The complete machine which we have on trial is a factory rebuilt dicta-

phone and the cost is $280, about $200 less than the price of a new outfit. We would like to request the permission of the Council to make this purchase.

In closing, may I take this opportunity to express my sincere appreciation to Dr. Waddell and to the members of the Council for the friendly and helpful cooperation toward this office during the past year.

Respectfully submitted,
JOE W. SAVAGE,
Executive Secretary.

TAX ON DRUGS

A number of Association members have recently written to the headquarters office in Charleston for information relating to the Tax Commissioner's bulletin outlining the application of consumers sales tax to sales of drugs, supplies, x-ray films, etc., to physicians. For the benefit of doctors who are interested in the interpretation of this bulletin, we quote the following explanation which has been received from Mr. Ernest K. James, State Tax Commissioner:

"The purpose of this department in issuing this ruling was to make it clear to both druggists and members of the medical profession that physicians, surgeons and dentists are liable for the payment of consumers sales tax on their purchases of drugs, supplies, x-ray films, etc., for use in their profession or for their personal use. The last part of the second paragraph of this ruling was included because of the fact the department recognizes that in certain isolated sections there are undoubtedly some doctors who, instead of giving their patients prescriptions to be filled at the drug store, fill their own prescriptions and sell the medicine to the patients. In these cases the ordinary charge for professional service does not cover the charge for medicine, this being a separate item and taxable in exactly the same manner as if the patient had taken the prescription to the drug store to be filled. It is not expected in any case where drugs or medical supplies are used in connection with the dispensing of professional services and for which no separate charge is set out, that the consumers sales tax be collected from the patient."

SOUTHERN MEDICAL APPOINTMENTS

Dr. Walter E. Vest, Huntington, president of the Southern Medical Association, has announced the following appointments to the Southern Council: Dr. R. M. Anderson of Shawnee, Oklahoma, to succeed Dr. W. K. West of Oklahoma City. Dr. W. H. Anderson of Booneville, Mississippi, editor of the "*Mississippi Doctor*", to succeed Dr. Harvey F. Garrison of Jackson. Dr. Lucien LeDoux of New Orleans, a member of the faculty of the Louisiana State University Medical School, to succeed Dr. A. A. Herold of Shrevesport.

CONFERENCE OF SECRETARIES

The annual Conference of County Society Secretaries and Presidents will be held at the Daniel Boone Hotel, Charleston, on January 6, 1938, opening at 10:30 o'clock. While the program is not yet completed, the list of speakers includes Dr. Ray M. Bobbitt, Association president; Dr. R. J. Wilkinson, chairman of the Low Cost Study Committee; Dr. R. O. Rogers of Bluefield, who will talk on the principles underlying hospital insurance; Dr. W. M. Sheppe, who will discuss recent developments in the syphilis control campaign in West Virginia, and Dr. Walter E. Vest, who will discuss the National Health Program.

All county society secretaries and presidents have been invited to bring their ladies to the conference and remain over for the annual dinner dance of the Kanawha Medical Society which will be held that evening. A luncheon in honor of the secretaries will be served at the hotel between the morning and afternoon sessions.

WHITE SULPHUR DATES FIXED

The 1939 annual meeting of the West Virginia State Medical Association at White Sulphur Springs will be held on Monday, Tuesday and Wednesday, July 10, 11 and 12, according to a recent announcement of the program committee. It was understood that the July dates were agreed upon after a concensus of opinion of the Association membership had been secured by the committee.

Work on the scientific program for the White Sulphur meeting is progressing rapidly and an announcement of the out-of-state speakers will probably be made in the February JOURNAL. The committee has arranged for all general scientific sessions at White Sulphur to be held during the morning hours. The sectional meetings and the meetings of the special societies will be held during the three afternoons.

County Society News

CABELL COUNTY

Dr. H. Worley Kendell, assistant director of physiotherapy, Miami Valley Hospital, Dayton, Ohio, was the guest speaker at the December 8 meeting of the Cabell County Medical Society which was held at the Governor Cabell Hotel. Dr. Kendell's subject was "Fever Therapy," demonstrated with motion pictures and slides. A liberal and interesting discussion followed.

A called meeting of the society was held at the Governor Cabell Hotel on the evening of December 22 for the purpose of discussing plans incident to caring for the indigent and low wage groups.

BOYD F. BROWN, *Secretary.*

CENTRAL WEST VIRGINIA

The Central West Virginia Medical Society held its meeting at Buckhannon, November 21, and heard a paper by Dr. A. E. McClue, state health commissioner, dealing with "Socialization of Medicine." This topic was discussed with much interest by a number of the members of the society and a resolution was adopted by this society opposing "socialization of medicine."

Dr. J. E. Judson of the West Virginia Wesleyan College faculty and secretary to the West Virginia Academy of Science, talked a few minutes on suggestions relative to the improvement of the present sterilization law of mental defectives. The society appointed a committee consisting of Doctors James McClung, Richwood; M. T. Morrison, Sutton, and H. O. VanTromp, of Weston State Hospital to cooperate in presenting this matter to the legislative committee of the state society.

The following officers for the ensuing year were elected:

President, Dr. Eugene S. Brown, Summersville; vice president, Dr. J. C. Eakle, Sutton; secretary-treasurer, Dr. A. B. Bowyer, Buckhannon.

The next meeting will be held at Gassaway and the committee for arrangements consists of Doctors C. C. Carson, Earl Fisher, and J. C. Eakle.

A. B. BOWYER, *Secretary.*

EASTERN PANHANDLE

Dr. M. R. Fox of Charles Town was elected president of the Eastern Panhandle Medical Society at the regular meeting at Martinsburg on December 12, succeeding Dr. A. W. Armentrout who has served during the past year. Dr. C. G. Power was elected vice president, Dr. M. H. Porterfield was reelected secretary-treasurer, and Dr. J. L. Van Metre was elected to the Board of Censors for a three year term.

Speakers at the December 12 meeting included Dr. Donald L. Butterfield, director of the medical program of the Department of Public Assistance; Dr. Charles W. Ritter, head of the Rehabilitation Bureau, and Mr. Joe W. Savage, State Association secretary.

M. H. PORTERFIELD, *Secretary.*

FAYETTE COUNTY

The Fayette County Medical Society held its regular monthly meeting at the Hotel Hill, Oak Hill, on December 6, 1938. The guest speaker was Dr. Vernon L. Peterson of Charleston, who gave an excellent x-ray review of "Non-inflammatory Bone Lesions."

Following the scientific program, election of officers for 1939 was held. Dr. C. E. Watkins, Harvey, was elected president; Dr. A. L. Hunter, Pax, and Dr. W. E. Bundy, Minden, vice presidents, and Dr. G. A. Daniel, Alloy, secretary-treasurer. Dr. W. P. Bittinger, Summerlee, was elected for the two year term as delegate, with Dr. C. G. Hodges of Kilsythe as alternate. Dr. N. L. Cardey, Winona, was elected for the one year term with Dr. C. H. Engelfried, Montgomery, as alternate.

G. A. DANIEL, *Secretary.*

GREENBRIER VALLEY

Dr. W. E. Myles and Dr. R. E. Baer of White Sulphur Springs were the essayists at the October 17 meeting of the Greenbrier Valley Medical Society which was held at the Greenbrier Hotel. Dr. Myles gave a paper on "Infection of Bots of Genus Cuterebra in the Cervical Spine," and Dr. Baer spoke on "Hyperparathyroid." Dr. K. J. Hamrick of Marlinton gave several case reports on the use of sulfanilamide.

Dr. Guy Hinsdale and Dr. Baer were appointed as a committee to work out details for a joint meeting of the Greenbrier Society with the Allegheny-Bath County Medical Society of Virginia. Refreshments were served following the meeting.

The December 13 meeting of the society was held in the Community House in Lewisburg, with Dr. H. D. Gunning, president, presiding. Numerous case reports were presented by various members, all of which were discussed freely. A very interesting

paper was presented by Dr. A. G. Lanham, Ronceverte on "Socialized Medicine." The entire society entered into the discussion.

New officers were elected. Dr. J. G. Leech, Quinwood, was elected president; Dr. K. J. Hamrick, vice president, and Dr. R. E. Baer was reelected secretary-treasurer. Dr. W. E. Myles was named to the Board of Censors. Dr. A. G. Lanham was elected as delegate to the state meeting, with Dr. D. G. Preston, Lewisburg, as alternate. Dr. W. H. Chappel, Marfrance, and Dr. T. G. Matney, Peterstown, were voted in as new members.

Following the regular program, refreshments were served by Mrs. J. H. Crouch, Mrs. C. W. Lemon and Mrs. D. G. Preston.

R. E. BAER, *Secretary*.

HARRISON COUNTY

The regular monthly meeting of the Harrison County Medical Society was held Thursday evening, December 1, at the Stonewall Jackson Hotel.

Officers elected for 1939 were as follows: President, Dr. Jas. G. Ralston; vice president, Dr. C. C. Greer; secretary, Dr. M. E. Farrell; treasurer, Dr. Geo. F. Evans; delegate for one year term, Dr. Frank V. Langfitt; delegates for two year term, Dr. H. V. Thomas and Dr. Geo. F. Evans; alternates are, Dr. J. E. Wilson, Dr. C. O. Post and Dr. L. E. Neal.

Dr. H. H. Golz, Dr. Lawrence H. Mills and Dr. J. Frank Williams were elected to membership in the society.

J. G. RALSTON, *Secretary*.

KANAWHA COUNTY

Dr. George Fordham of Powellton, West Virginia, was the guest speaker at the December 13 meeting of the Kanawha Medical Society held at the Daniel Boone Hotel, Charleston. His subject was "Influenza" which brought forth a lively and interesting discussion.

Following the scientific program, election of officers was held for the coming year. Dr. Thomas G. Reed was elected president to succeed Dr. B. H. Swint, and Dr. A. Spates Brady, Jr., was reelected secretary-treasurer.

The next meeting of the society will be the annual dinner dance at the Daniel Boone Hotel on the evening of January 6, 1938.

A. SPATES BRADY, JR., *Secretary*.

LEWIS COUNTY

The regular meeting of the Lewis County Medical Society was held in Weston on the evening of December 13 and Dr. A. F. Lawson, Weston, was elected president to succeed Dr. G. C. Corder of Jane Lew. Other officers elected were Dr. C. R. Davisson, Weston, vice president; Dr. R. O. Pletcher, Jane Lew, secretary-treasurer; Dr. E. A. Trinkle, Weston, delegate; Dr. C. B. Rohn, Alum Bridge, alternate delegate, and Dr. O. L. Hudkins and Dr. D. P. Kessler, Weston, censors.

R. O. PLETCHER, *Secretary*.

LOGAN COUNTY

The Logan County Medical Society held its annual dinner and election of officers at the Logan Woman's Club rooms on December 7. The following officers were elected for the year 1939:

President, Dr. J. L. Patterson, Holden; vice president, Dr. W. H. Parker, Braeholm; secretary, Dr. J. W. Carney, Logan; censor, Dr. D. T. Moore, Stirrat; delegate, one year term, Dr. E. H. Starcher, Earling; delegate, two year term, Dr. I. M. Kruger, Logan.

This being primarily a social meeting, only routine business was considered. There were 26 members and six visitors present.

J. L. PATTERSON, *Secretary*.

MERCER COUNTY

The regular monthly meeting of the Mercer County Medical Society was held Wednesday, November 23, at 8:00 p. m. in the Municipal Building, Bluefield.

Doctors Charles St. Clair, Jr., H. G. Steele, and C. H. Goodykoontz, Jr., were appointed a committee to arrange for our annual banquet to be held in December. Following this banquet the election of officers will be held.

Doctors Frank M. Huff and Karl Weir were guests at the meeting.

The program consisted of "Rambling Remarks Reminiscent of the Nineties" by Doctor J. Frank Fox. Doctor Wade St. Clair, who recently returned from abroad, gave a very interesting description of the European clinics he attended.

O. G. KING, *Secretary*.

MONONGALIA COUNTY

Dr. E. F. Heiskell, Morgantown, was elected president of the Monongalia County Medical Society for 1939 at the annual meeting at the Hotel Morgan on the evening of December 6. Dr. Heiskell succeeds Dr. Donald M. Post.

Other officers elected by the society were Dr. G. R. Maxwell, vice president; Dr. Carl E. Johnson, secretary, and Dr. L. W. Cobun, treasurer. Dr. Post was elected to the board of censors. Dr. C. C. Romine was elected as delegate for the two year term and Dr. F. R. Whittlesey for the one year term. Dr. E. F. Heiskell and Dr. Brinley John were named as alternates.

It was reported that the City of Morgantown was planning to appeal to the State Supreme Court the recent injunction granted Morgantown doctors restraining the city from enforcing a municipal tax on gross professional incomes.

G. R. MAXWELL, *Secretary.*

PARKERSBURG ACADEMY

The regular monthly meeting of the Academy of Medicine of Parkersburg was held at the Camden-Clark Hospital, Parkersburg on the evening of December 7 with a good attendance. Dr. R. S. Widmeyer, president, presided. The report of the secretary was read and accepted. Dr. J. G. Rogers, Parkersburg, was elected to honorary membership.

The election of officers was held and Dr. W. R. Goff, Parkersburg, was elected president to succeed Dr. Widmeyer for 1939. Dr. A. R. K. Matthews, Parkersburg, was elected vice president and Dr. A. C. Woofter, Parkersburg, was elected secretary-treasurer. The election of the board of directors was deferred to the January meeting.

The speaker of the evening was Dr. Ivan Smith, former Parkersburg pathologist, of London, Ontario, Canada. He presented a very up-to-date paper dealing with the treatment of cancer, especially skin cancer, by the use of irradiation, radium and surgery. Dr. Smith showed models of the various apparatus used in his modern technique for the treatment of epithelioma and "rodent" ulcer. He likewise discussed the various grades of carcinoma of the breast, with the indicated treatment. A lively discussion followed, led by Dr. S. H. D. Wise, honorary member, who delineated his experience in cancer work. Dr. A. R. Lutz briefly discussed the problems of bone neoplasm.

Following the meeting, through the beneficence of the hospital, a turkey luncheon with all accessories, including a keg of beer, was served.

JAMES L. WADE, *Secretary.*

OHIO COUNTY

Dr. George M. Lyon of Huntington was the guest speaker at the November 25 meeting of the Ohio County Medical Society, held in the Solarium of the Ohio Valley General Hospital. His subject was, "Sulfanilamide Therapy in Meningitis." Discussion was led by Dr. J. T. Thornton and Dr. R. C. Bond.

Dr. W. W. G. Maclachlan, associate professor of medicine at the University of Pittsburgh, was the guest speaker at the December 16 meeting of the society. His subject was "Treatment of Pneumonia with the Quinine Derivative, Hydroxyethylapocupraine." Discussion was led by Dr. D. A. MacGregor and Dr. R. J. Snider.

R. W. LUKENS, *Secretary.*

HOW 4-H CLUBS BUILD HEALTH

How 4-H Clubs have helped to build the health of the 1,600 boys and girls who attended the annual 4-H Club Congress in Chicago the first week in December is told by Lou Tregoning, Chicago, in the January issue of *Hygeia, The Health Magazine.*

Winning the national health honor, most coveted of 4-H awards, involves months of effort. The four boys and four girls who were declared health champions this year, as well as every other contestant, had to give daily attention to such things as proper diet, sufficient rest, exercise and good posture.

The contestants first were examined in lcoal club contests, had their defects checked and then sought to correct them. They then entered the county competitions and sought further improvement, repeating the routine through the state contests.

A minute examination by competent doctors and a questionnaire on the health habits and achievements of the contestants form the basis for deciding the winners.

When a contest is over, the entrants are never given scores but are told what to do to correct their defects. The local club studies the list of its members' defects to decide what corrections are to form the main part of the health program for the next year.

Recognition is given in each county contest to the boy and girl who have made the greatest improvement in health since the previous contest.

If defects are found to be serious, the condition is explained to the parents, most of whom give full cooperation. Serious difficulties have thus been corrected.

ACTIVE AND HONORARY MEMBERSHIP

WEST VIRGINIA STATE MEDICAL ASSOCIATION

(Editor's Note—Below will be found the names of all active and honorary members in good standing in their respective county societies. The asterik (*) appearing before a name indicates honorary membership. From this type will be published the annual Association directory of members. Will each member please check his own name and address and notify the Journal at once if any error is made.

BARBOUR-RANDOLPH-TUCKER

H. H. Bolton ..... Pierce
J. M. Brand ..... Coketon
A. P. Butt ..... Elkins
P. C. Chenoweth ..... Elkins
R. J. Condry ..... Elkins
H. A. Conrad ..... Elkins
A. K. Fidler ..... Elkins
B. I. Golden ..... Elkins
T. M. Goodwin ..... Elkins
P. L. Gray ..... Elkins
C. H. Hall ..... Elkins
W. G. Harper ..... Elkins
E. M. Jeffries ..... Philippi
L. S. King ..... Philippi
B. L. Liggett ..... Mill Creek
L. U. Lumpkin ..... Elkins
L. C. McGee ..... Elkins
G. H. Michael ..... Belington
J. H. Miller ..... Thomas
J. L. Miller ..... Thomas
S. G. Moore ..... Elkins
Frank Murphy ..... Galloway
E. E. Myers ..... Philippi
H. C. Myers ..... Philippi
K. J. Myers ..... Philippi
S. J. Skar ..... Davis
W. S. Smith ..... Philippi
F. T. Sorum ..... Norton
C. G. Stroud ..... Brownton
S. Weisman ..... Parsons
W. E. Whiteside ..... Parsons
J. R. Woodford ..... Philippi
T. L. Woodford ..... Junior
*J. L. Bosworth ..... Mill Creek
*A. M. Fredlock ..... Elkins
*E. M. Hamilton ..... Belington
*W. W. Kerr ..... Volga
*H. K. Owens ..... Elkins
*W. L. Miller ..... Bemis
*C. B. Williams ..... Philippi

BOONE SOCIETY

W. L. Barbour ..... Whitesville
A. E. Glover ..... Madison
W. F. Harless ..... Madison
R. L. Hunter ..... Madison
A. C. Lewis ..... Seth
C. E. Lewis ..... Nellis
D. F. Pauley ..... Jeffrey
F. G. Prather ..... Barrett
W. V. Wilkerson ..... Highcoal

BROOKE SOCIETY

W. T. Booher ..... Wellsburg
F. T. Dare ..... Wellsburg
H. L. Hegner ..... Wellsburg
Leo Huth ..... Follansbee
S. S. Jacob ..... Bethany
F. L. Matson ..... Wellsburg
J. A. McCurdy ..... Warwood
Ralph McGraw ..... Follansbee
J. P. McMullen ..... Wellsburg
C. R. Megahan ..... Follansbee
R. C. Otte ..... Wellsburg
W. L. Simpson ..... Wellsburg

CABELL SOCIETY

J. H. Baber ..... Huntington
R. E. Bailey ..... Hamlin
J. F. Barker ..... Huntington
H. E. Beard ..... Huntington
W. F. Beckner ..... Huntington
O. B. Biern ..... Huntington
R. G. Blackwelder ..... Huntington
J. R. Bloss ..... Huntington
R. M. Bobbitt ..... Huntington
W. D. Bourn ..... Barboursville
J. J. Brandabur ..... Huntington
B. F. Brown ..... Huntington
F. A. Brown ..... Huntington
J. R. Brown ..... Huntington
L. C. Brown ..... Huntington
W. F. Bruns ..... Ceredo
V. L. Chambers ..... Huntington
Leo Christian ..... Huntington
F. L. Coffey ..... Huntington
J. R. Cook ..... Huntington
Robt. W. Coplin ..... Huntington
A. W. Crews ..... Huntington
D. J. Cronin ..... Huntington
R. H. Curry ..... Barboursville
W. F. Daniels ..... Huntington
L. F. Dobbs ..... Huntington
C. S. Duncan ..... Huntington
F. F. Farnsworth ..... Milton
J. W. Ferguson ..... Kenova
T. G. Folsom ..... Huntington
C. P. S. Ford ..... Huntington
J. C. Ford ..... Huntington
L. B. Gang ..... Huntington
B. D. Garrett ..... Kenova
E. B. Gerlach ..... Huntington
A. P. Gibson ..... Huntington
W. O. Grimm ..... Huntington
J. A. Guthrie ..... Huntington
O. L. Hamilton ..... Huntington
J. C. Hardman ..... Huntington
I. R. Harwood ..... Huntington
H. D. Hatfield ..... Huntington
C. M. Hawes ..... Huntington
Douglas Hayman ..... Huntington
L. S. Henley ..... Huntington
W. D. Hereford ..... Huntington
I. C. Hicks ..... Huntington
I. I. Hirschman ..... Huntington
F. C. Hodges ..... Huntington
C. A. Hoffman ..... Huntington
F. J. Hoitash ..... Huntington
J. E. Hubbard ..... Huntington
P. M. Huddleston ..... Huntington
E. J. Humphrey ..... Huntington
W. B. Hunter ..... Huntington
J. L. Hutchinson ..... Huntington
G. D. Johnson ..... Huntington
A. S. Jones ..... Huntington
A. T. Jordon ..... Winfield
W. C. Kappes ..... Huntington
J. R. Kessee ..... Huntington
Dorsey Ketchum ..... Huntington
A. D. Kessler ..... Huntington
A. K. Kessler ..... Huntington
J. S. Klumpp ..... Huntington
W. M. Lewis ..... Huntington
H. V. Lusher ..... Huntington
G. M. Lyon ..... Huntington
A. R. MacKenzie ..... Huntington
L. B. McCaleb ..... Huntington
F. O. Marple ..... Huntington
W. B. Martin ..... Huntington
Hallock Moore ..... Huntington
M. B. Moore ..... Huntington
T. W. Moore ..... Huntington
G. C. Morrison ..... Huntington
W. E. Neal ..... Huntington
W. J. Parsons ..... Huntington
Bruce Pollock ..... Pt. Pleasant
W. S. Porter ..... Wayne
K. C. Prichard ..... Huntington
M. C. Prichard ..... Milton
G. A. Ratcliff ..... Huntington
E. F. Reaser ..... Huntington
C. O. Reynolds ..... Huntington
L. C. Richmond ..... Milton
J. W. Rife ..... Kenova
W. N. Rowley ..... Huntington
A. G. Rutherford ..... Huntington
F. X. Schuller ..... Huntington
F. A. Scott ..... Huntington
E. E. Shafer ..... Huntington
R. M. Sloan ..... Huntington
J. H. Steenbergen ..... Huntington
Roscoe Stotts ..... Kenova
W. W. Strange ..... Huntington
W. C. Swann ..... Huntington
C. T. Taylor ..... Huntington
I. W. Taylor ..... Huntington
W. C. Thomas ..... Huntington
R. S. Van Metre ..... Huntington
W. E. Vest ..... Huntington
G. W. Walden ..... West Hamlin
Stanley Weinstein ..... Huntington
R. J. Wilkinson ..... Huntington
C. A. Willis ..... Huntington
C. G. Willis ..... Huntington
C. B. Wright ..... Huntington
R. M. Wylie ..... Huntington

CENTRAL W. VA. SOCIETY

A. B. Bowyer ..... Buckhannon
A. W. Brazda ..... Richwood
E. S. Brown ..... Summersville
F. H. Brown ..... Summersville
G. O. Brown ..... Buckhannon
H. S. Brown ..... Sutton
J. D. Brown ..... Lost Creek
C. C. Carson ..... Gassaway
J. M. Cofer ..... Bergoo
L. W. Deeds ..... Buckhannon
J. B. Dodrill ..... Webster Springs
Hugh Dunn ..... Richwood
J. C. Eakle ..... Sutton
O. O. Eakle ..... Sutton
J. E. Echols ..... Richwood
W. E. Echo's ..... Richwood
E. L. Fisher ..... Gassaway
G. E. Godman ..... Jerryville
I. F. Hartman ..... Buckhannon
G. D. Hill ..... Tioga
L. O. Hill ..... Camden-on-Gauley
E. H. Hunter ..... Webster Springs
Henrietta Marquis ..... Richwood
J. N. Marquis ..... Richwood
James McClung ..... Richwood
W. E. McIlvain ..... Sutton
M. T. Morrison ..... Sutton
William Nelson ..... Richwood
B. L. Page ..... Buckhannon
L. W. Page ..... Buckhannon
J. A. Rusmisell ..... Buckhannon
H. O. Van Tromp ..... French Creek

*S. P. Allen.....Webster Springs
*Fleming Howell.....Buckhannon
*W. H. McCauley.....Sutton
*J. L. Pifer.....Buckhannon
*Everett Walker.....Adrian

DODDRIDGE SOCIETY

Homer Freeman.....Centerpoint
A. Poole.....West Union
E. T. Wetzel.....West Union
R. S. White.....West Union

EASTERN PANHANDLE SOCIETY

A. O. Albin.....Charles Town
A. W. Armentrout.....Martinsburg
E. H. Bitner.....Martinsburg
R. E. Clapham.....Martinsburg
A. B. Eagle.....Martinsburg
M. R. Fox.....Charles Town
V. L. Glover.....Martinsburg
J. K. Guthrie.....Martinsburg
W. L. Halton.....Martinsburg
J. C. Helm.....Hedgesville
N. B. Hendrix.....Martinsburg
C. C. Johnson.....Harpers Ferry
G. O. Martin.....Martinsburg
Elizabeth McFetridge.....Shepherdstown
W. J. Melvin.....Darke
G. P. Morison.....Charles Town
H. N. Moser.....Shepherdstown
Max Oates.....Martinsburg
T. K. Oates.....Martinsburg
M. H. Porterfield.....Martinsburg
C. G. Power.....Martinsburg
Compton Riely.....Martinsburg
G. J. E. Sponseller.....Martinsburg
R. B. Talbott.....Martinsburg
C. A. Thomas.....Martinsburg
H. G. Tonkin.....Martinsburg
J. L. Van Metre.....Charles Town
W. A. Wallace.....Martinsburg
Halvard Wanger.....Shepherdstown
Z. K. Waters.....Martinsburg

FAYETTE COUNTY

A. E. Bays.....Montgomery
F. W. Bilger.....Maybeury
W. P. Bittinger.....Summerlee
B. F. Brugh.....Montgomery
W. E. Bundy.....Minden
N. L. Cardey.....Winona
G. O. Crank.....Lawton
Gilbert Daniel.....Alloy
T. B. Daugherty.....Fayetteville
W. B. Davis.....Elkridge
W. A. Derrick.....Montgomery
L. A. Dickerson.....Fayetteville
C. H. Engelfried.....Montgomery
C. A. Fleger.....Ansted
George Fordham.....Powellton
Claude Frazier.....Montgomery
L. R. Harless.....Gauley Bridge
G. G. Hodges.....Kilsythe
Ralph Hogshead.....Montgomery
L. I. Hoke.....Layland
A. L. Hunter.....Pax
C. C. Jackson.....East Rainelle
E. E. Jones, Jr.....Mount Hope
Harold Jones.....Montgomery
R. D. Ketchum.....Longacre
W. R. Laird.....Montgomery
James P. Leary.....McKendree
H. C. Martin.....Rainelle
M. W. McGehee.....Montgomery
C. G. Merriam.....Beard's Fork
M. A. Moore.....Longacre
N. G. Patterson.....McKendree
R. S. Peck.....Cannelton
J. T. Peters.....Scarbro
D. F. Predmore.....Ansted
P. E. Prillaman.....Oak Hill
H. C. Skaggs.....Montgomery
G. A. Smith.....Montgomery
J. M. Spinks.....Mount Hope
C. W. Stallard.....Montgomery
E. B. Thompson.....Montgomery
H. F Troutman.....Page
R. A. Updike.....Montgomery
J. F. Van Pelt.....Oak Hill
C. A. Watkins.....Harvey
*O. J. Henderson.....Montgomery
*S. W. Price.....Scarbro
*J. S. Shaffer.....Montgomery
*D. W. Shirkey.....Montgomery

GREENBRIER VALLEY SOCIETY

O. P. Argrabrite.....Alderson
R. E. Baer.....White Sulphur Springs
C. C. Ballard.....Gap Mills
J. M. Brown.....Alderson
G. M. Caldwell...White Sulphur Springs
R. C. Cecil.....Rainelle
J. R. Crawley.....Anjean
J. H. Crouch.....Lewisburg
A. D. Ferrell.....Ronceverte
H. L. Goodman.....Ronceverte
H. D. Gunning.....Ronceverte
K. J. Hamrick.....Marlinton
Guy Hinsdale....White Sulphur Springs
E. W. Hoylman.....Dorr
E. G. Kesler.....Williamsburg
A. G. Lanham.....Ronceverte
J. G. Leech.....Quinwood
Allen E. LeHew.....Lewisburg
C. W. Lemon.....Lewisburg
C. F. Mahood.....Alderson
E. W. McCauley.....Rainelle
C. F. McClintic.....Williamsburg
S. A. McFerrin.....Renick
W. E. Myles.....White Sulphur Springs
D. G. Preston.....Lewisburg
N. R. Price.....Marlinton
J. N. Reeves.....Ronceverte
Edda Von Bose.....Alderson
C. I. Wall.....Rainelle
*J. W. De Vebre.....Ronceverte
*H. L. Kirkpatrick.White Sulphur Springs

HANCOCK SOCIETY

G. L. Beaumont.....New Cumberland
M. Bogarad.....Weirton
T. H. Bruce.....New Cumberland
G. H. Davis.....Weirton
J. E. Fisher.....New Cumberland
A. E. McClue.....Charleston
E. R. McNinch.....Weirton
M. H. Powers.....Weirton
V. Prioletti.....Weirton
J. E. Richmond.....Weirton
George Rigas.....Weirton
A. B. Rinehart.....Weirton
L. O. Schwartz.....Weirton
A. C. Sunseri.....Weirton
J. L. Thompson.....Weirton
Milton Wolpert.....Chester
Anthony Yurko.....Holliday's Cove

HARRISON COUNTY

W. H. Allman.....Clarksburg
B. S. Brake.....Clarksburg
E. H. Brannon.....Bridgeport
J. T. Brennan.....Clarksburg
J. R. Carder.....Clarksburg
F. C. Chandler.....Bridgeport
R. S. Coffindaffer.....Shinnston
I. D. Cole.....Clarksburg
D. P. Cruikshank.....Lumberport
Edward Davis.....Salem
W. M. Davis.....Bridgeport
H. H. Esker.....Clarksburg
G. F. Evans.....Clarksburg
Marcus E. Ferrell.....Clarksburg
C. F. Fisher.....Clarksburg
Earl N. Flowers.....Clarksburg
Thomas Gocke.....Clarksburg
W. T. Gocke.....Clarksburg
Sylvia Grant.....Lumberport
C. C. Greer.....Clarksburg
S. S. Hall.....Clarksburg
T. G. Harris.....West Milford
H. H. Haynes.....Clarksburg
R. C. Hood.....Washington, D. C.
R. T. Humphries.....Clarksburg
Kenna Jackson.....Clarksburg
C. C. Jarvis.....Clarksburg
J. R. Johnson.....Shinnston
A. O. Kelley.....Wallace
A. J. Kemper.....Lost Creek
O. W. Ladwig.....Wilsonburg
F. V. Langfitt.....Clarksburg
R. B. Linger.....Clarksburg
R. V. Lynch.....Meadowbrook
J. S. Maloy.....Shinnston
J. P. McGuire.....Clarksburg
L. E. Neal.....Clarksburg
R. B. Nutter.....Enterprise
R. B. Nutter, Jr.....Lumberport
R. J. Nutter.....Clarksburg
C. R. Ogden.....Clarksburg
R. L. Osborn.....Clarksburg
W. T. Owens.....Clarksburg
J. E. Page.....Clarksburg
E. Pendleton.....Clarksburg
A. T. Post.....Clarksburg
C. O. Post.....Clarksburg
S. H. Post.....Volga
James Ralston.....Clarksburg
James Repass.....Lumberport
R. M. Riley.....Nutter Fort
C. N. Slater.....Clarksburg
H. E. Sloan.....Clarksburg
W. W. Spelsburg.....Clarksburg
L. O. Spencer.....Shinnston
J. E. Stephenson.....Clarksburg
W. L. Strother.....Salem
H. V. Thomas.....Clarksburg
E. D. Tucker.....Nutter Fort
E. F. Wehner.....Clarksburg
H. A. Whisler.....Clarksburg
B. W. Wilkinson.....Clarksburg
J. F. Williams.....Clarksburg
J. E. Wilson.....Clarksburg
E. S. Wornal.....Shinnston
E. B. Wright.....Clarksburg
*A. O. Flowers.....Clarksburg
*E. Newton Flowers.....Clarksburg
*John Folk.....Bridgeport
*E. A. Hill.....Clarksburg
*T. M. Hood.....Clarksburg

KANAWHA SOCIETY

A. E. Amick.....Charleston
A. L. Amick.....Charleston
Maury Anderson.....Dunbar
R. L. Anderson.....Charleston
H. W. Angell.....Charleston
H. A. Bailey.....Charleston
H. E. Baldock.....Charleston
J. Bankhead Banks.....Charleston
D. N. Barber.....Charleston
T. M. Barber.....Charleston
G. H. Barksdale.....Charleston
H. M. Beddow.....Charleston
S. L. Bivens.....Charleston
W. P. Black.....Charleston

T. H. Blake.....Charleston
O. H. Bobbitt.....Charleston
Julius Boiarsky.....Charleston
M. L. Bonar.....Charleston
A. S. Brady, Jr.....Charleston
H. M. Brown.....Charleston
R. J. Brown.....Charleston
I. E. Buff.....Charleston
R. K. Buford.....Charleston
J. F. Cadden.....Charleston
J. E. Cannaday.....Charleston
G. B. Capito.....Charleston
T. J. Casto.....Charleston
T. E. Cato.....Charleston
Preston Champe.....Charleston
V. T. Churchman.....Charleston
V. T. Churchman, Jr.....Charleston
F. A. Clark.....Charleston
W. L. Cooke.....Charleston
E. A. Davis.....Charleston
D. A. Dent.....Charleston
Ross Dodson.....Huntington
M. S. Duling.....Charleston
J. L. Dunlap.....Bancroft
R. H. Dunn.....South Charleston
F. L. Erwin.....Burnwell
H. M. Escue.....St. Albans
D. J. Feerer.....Cabin Creek
H. H. Fisher.....Dunbar
C. M. Fleshman.....Clendenin
R. I. Frame.....Sharples
J. W. Frazier.....Charleston
A. J. Given.....Rensford
H. R. Glass.....Charleston
W. J. Glass.....Sissonville
Dan Glassman.....South Charleston
P. L. Gordon.....Charleston
Fred Gott.....Charleston
G. F. Grisinger.....Charleston
F. W. Gross.....Gallagher
P. A. Haley, II.....Charleston
R. O. Halloran.....Charleston
R. E. Hamrick.....Charleston
R. S. Hamrick.....St. Albans
J. H. Hansford.....Pratt
O. M. Harper.....Clendenin
E. R. Hays.....Chelyan
G. P. Heffner.....Belle
E. B. Henson.....Charleston
W. E. Hoffman.....Charleston
V. E. Holcombe.....Charleston
H. H. Howell.....Madison
A. P. Hudgins.....Charleston
J. Ross Hunter.....Charleston
T. H. Hutchinson.....Malden
R. A. Ireland.....Charleston
G. G. Irwin.....Charleston
L. A. Jarrett.....Dunbar
E. V. Jordan.....Charleston
C. R. Kessel.....Ripley
Ray Kessel.....Charleston
Russel Kessel.....Charleston
H. D. Law.....Charleston
J. P. Lilly.....Charleston
E. A. Litzinger.....Charleston
R. R. Louft.....Charleston
V. E. Mace.....Charleston
C. B. Marshall.....Nitro
U. G. McClure.....Charleston
W. A. McMillan.....Charleston
W. O. McMillan.....Charleston
H. D. McPherson.....Eskdale
M. I. Mendeloff.....Charleston
H. W. Merideth.....Carbon
A. W. Milhoan.....Nitro
J. W. Moore.....Charleston
O. N. Morison.....Charleston
L. H. Mynes.....Charleston
T. W. Nale.....Charleston
G. P. Naum.....Ward
J. T. Nolen.....Poca
E. W. Owen.....Spencer
R. E. Pence.....South Charleston
V. L. Peterson.....Charleston
S. H. Phillips.....Charleston
W. W. Point.....Charleston
W. C. Polsue.....Charleston
Phillip Preiser.....Charleston
A. M. Price.....Charleston
R. B. Price.....Charleston
C. A. Ray.....Charleston
Roy Ray.....South Charleston
T. G. Reed.....Charleston
F. H. Reeder.....Charleston
P. H. Revercomb.....Charleston
G. A. Rigrish.....Charleston
J. E. Roberts.....Charleston
G. C. Robertson.....Charleston
H. L. Robertson.....Charleston
W. B. Robertson.....Belle
W. S. Robertson.....Charleston
J. U. Rohr.....Charleston
D. B. Rosehill.....Clendenin
J. E. Rucker.....Charleston
G. C. Schoolfield.....Charleston
C. N. Scott.....Charleston
Abraham Seletz.....Charleston
J. H. Selman.....Charleston
Earl Shamblen.....Charleston
A. A. Shawkey.....Charleston
W. S. Shepherd.....Charleston
W. F. Shirkey.....Charleston
J. S. Skaggs.....Montcoal
J. W. Swaggs.....Nitro
A. A. Smith.....Clay
B. A. Smith.....Spencer
C. B. Smith.....Charleston
J. A. Smith.....South Charleston
S. B. Souleyret.....Coalburg
Charles Staats.....Charleston
H. H. Staats.....Charleston
W. C. Stewart.....Charleston
H. A. Swart.....Charleston
B. H. Swint.....Charleston
H. G. Thompson.....Charleston
W. A. Thornhill, Jr.....Charleston
P. A. Tuckwiller.....Charleston
E. O. Vaughan.....St. A'bans
R. H. Walker.....Charleston
R. L. Webb.....Charleston
F. P. Weltner.....Charleston
C. T. Whiteside.....Kayford
A. A. Wilson.....Charleston
W. B. Wilson.....Charleston
H. B. Wise.....Charleston
R. E. Woodall.....Charleston
W. F. Work.....Charleston
*O. L. Aultz.....Charleston
*C. N. Brown.....Widen
*E. H. Campbell.....Alderson
*C. E. Copeland.....Charleston
*B. S. Preston.....Charleston
*W. H. Wilson.....St. Albans

LEWIS COUNTY

H. M. Andrew.....Weston
G. M. Burton.....Weston
S. H. Burton.....Weston
E. R. Cooper.....Glenville
G. C. Corder.....Jane Lew
M. D. Cure, Jr.....Weston
C. R. Davisson.....Weston
R. M. Fisher.....Weston
O. L. Hudkins.....Weston
D. P. Kessler.....Weston
W. P. King.....Weston
A. F. Lawson.....Weston
J. A. Markley.....Weston
J. E. Offner.....Weston
Robert O. Pletcher.....Jane Lew
C. B. Rohr.....Alum Bridge
W. T. Smith.....Glenville
Theresa Snaith.....Weston
George Snyder.....Weston
Guy Stalnaker.....Glenville
E. A. Trinkle.....Weston
*E. T. W. Hall.....Weston

LOGAN SOCIETY

A. E. Altizer.....Accoville
L. L. Aultz.....Omar
F. E. Brammer.....Dehue
W. E. Brewer.....Logan
J. W. Carney.....Logan
Arthur Davidman.....Logan
C. A. Davis.....Logan
V. A. Deason.....Logan
E. K. Disney.....Whitman
H. H. Farley.....Logan
T. J. Farley.....Amherstdale
J. T. Ferrell.....Chapmansville
A. M. French.....Logan
John Gallen.....Lorado
F. V. Gammage.....Logan
W. S. Gilmer.....Henlawson
Joseph L. Green.....Logan
D. S. Hess.....Holden
J. O. Hill.....Huntington
I. M. Kruger.....Logan
L. H. Layman.....Holden
J. W. Lyons.....Holden
C. A. Martin.....Amherstdale
W. E. Matthews.....Logan
W. T. McClellan.....Ethel
D. T. Moore.....Stirrat
W. H. Parker.....Braeholm
J. L. Patterson.....Holden
Owen Poling.....Mallory
R. W. Quaintance.....Lundale
R. W. Roberts.....Man
W. S. Rowan.....Logan
B. D. Smith.....Omar
T. C. Smith.....Slagle
E. H. Starcher.....Omar
L. E. Steele.....Logan
J. A. Stumbo.....Logan
J. W. Thornbury.....Man
James H. Thornbury.....Logan
Harold Vanhoose.....Mallory
R. R. Vaughn.....McBeth
J. E. Whitehill.....Earling
J. W. Yost.....Holden
*S. B. Lawson.....Logan
*F. L. Round.....Holden

MARION SOCIETY

J. M. Barr.....Worthington
J. L. Blanton.....Fairmont
C. J. Carter.....Fairmont
H. D. Causey.....Fairmont
J. B. Clinton.....Fairmont
J. C. Collins.....Fairmont
H. L. Criss.....Fairmont
P. D. Crynock.....Grant Town
J. W. Davis.....Fairmont
F. E. Flowers.....Mannington
C. T. Francis.....Fairmont
R. R. Frye.....Mannington
G. A. Granger.....Farmington
D. D. Hamilton.....Mannington
J. O. Hayhurst.....Fairmont
J. P. Helmick.....Farimont
C. L. Holland.....Fairmont
E. A. Holland.....Fairmont
L. D. Howard.....Fairmont

J. J. Jenkins.....Farmington
Phillip Johnson.....Fairmont
H. S. Keister.....Fairmont
C. L. Kinney.....Ida May
L. R. Lambert.....Fairmont
C. S. Lawson.....Fairmont
W. J. Leahy.....Mannington
J. T. Mallamo.....Fairmont
G. R. Miller.....Fairview
P. G. Moore.....Mannington
G. V. Morgan.....Fairmont
E. K. Munn.....Watson
L. D. Norris.....Fairmont
W. W. Orr.....Rachel
C. L. Parks.....Fairmont
P. F. Prioleau.....Fairmont
B. B. Rader.....Monongah
C. M. Ramage.....Fairmont
F. B. Rogers.....Fairmont
J. D. Romino.....Fairmont
E. P. Smith.....Fairmont
F. F. Sowers.....Fairmont
A. H. Stevens.....Fairmont
K. Y. Swisher.....Fairview
J. M. Trach.....Fairmont
J. P. Trach.....Fairmont
G. H. Traugh.....Fairmont
J. R. Tuckwiller.....Fairmont
C. W. Waddell.....Fairmont
D. A. Watkins.....Monongah
Clyde Watson.....Jordan
W. A. Welton.....Fairmont
E. D. Wise.....Everettsville
Joe Yost.....Fairmont
Paul Yost.....Fairmont
*J. H. Brownfield.....Fairmont
*C. O. Henry.....Fairmont
*H. R. Johnson.....Fairmont

MARSHALL SOCIETY

R. A. Ashworth.....Moundsville
P. D. Barlow.....McMechen
D. S. Benson.....Moundsville
W. C. Boggs.....Cameron
B. F. Bone.....Moundsville
O. F. Covert.....Moundsville
D. B. Ealy.....Moundsville
W. G. C. Hill.....Moundsville
J. H. Luikart.....Moundsville
L. H. McCuskey.....Moundsville
C. G. Morgan.....Moundsville
H. S. Parker.....McMechen
J. C. Peck.....Moundsville
J. A. Striebich.....Moundsville
*M. A. Dowler.....Glendale
*M. J. Fortney.....Hundred

MASON SOCIETY

H. A. Barbee.....Pt. Pleasant
R. F. Bryant.....New Haven
M. Koenigsburg.....Pt. Pleasant
J. M. Fadely.....Pt. Pleasant
E. L. McElfresh.....Pt. Pleasant
C. W. Petty.....Hartford
Jerome Toupkin.....Pt. Pleasant

McDOWELL SOCIETY

J. H. Anderson.....Hemphill
J. B. Bailey.....Davy
A. A. Baldwin.....Coalwood
J. A. Bennett.....Algoma
J. A. Bowers.....Caretta
A. H. Bracey.....Welch
H. A. Bracey.....Welch
R. K. Bragonier.....Keystone
John P. Brick.....Welch
C. I. Butte, Jr.....Jenkinjones
A. M. Byrd.....Bluefield
H. G. Camper.....Welch
A. B. Carr.....War
E. T. Cecil.....Berwind
C. B. Chapman.....Welch
C. T. Clark.....Iaeger
R. D. Clark.....Caretta
C. C. Cochrane.....Kimball
R. N. Cooley.....Coalwood
J. K. Cooper.....Premier
N. F. Coulon.....Gary
W. R. Counts.....Welch
J. E. Davis.....Welch
L. R. Dudney.....Welch
N. H. Dyer.....Bartley
R. H. Edwards.....Welch
Boyce Elliott.....Hemphill
G. P. Evans.....Iaeger
H. P. Evans.....Keystone
R. H. Fowlkes.....Welch
Norman Freidman.....Welch
R. A. Gettlefinger.....Kimball
F. H. Goodwin.....Welch
W. C. Hall.....Welch
J. C. Harrison.....Bradshaw
D. D. Hatfield.....Yukon
C. R. Hughes.....Kimball
J. C. Hutchinson.....Welch
C. F. Jackson.....Raysal
C. F. Johnston.....Welch
W. L. Johnston.....McDowell
J. C. Killey.....Vivian
P. G. Kroll.....Welch
F. E. La Prade.....Welch
E. E. Lovas.....Berwind
W. H. Malinosky.....Northfork
J. L. McCarty.....Berwind
D. C. Peters.....Marytown
I. T. Peters.....Maybeury
H. T. Schiefelbein.....Welch
R. V. Shanklin.....Gary
A. B. Spahr.....Newhall
P. C. Spangler.....Pageton
W. R. Strader.....Keystone
G. L. Straub.....Welch
M. F. Torregrossa.....Ashland
E. E. Vermillion.....Welch
J. S. Vermillion.....Welch
C. W. Vick.....Jenkinjones
J. O. Warren.....Welch
V. L. Wetherby.....Welch
L. L. Whitney.....Elbert
Arnold Wilson.....Welch
W. B. Young.....Northfork
*S. A. Daniel.....Welch

MERCER SOCIETY

J. H. Bird.....Rock
Ben W. Bird, Jr.....Princeton
J. E. Blaydes.....Bluefield
R. C. Bunts.....Bluefield
B. S. Clements.....Matoaka
H. R. Connell.....Bluefield
J. H. Craft.....Springton
S. G. Davidson.....Bluefield
W. D. Fitzhugh.....McComas
J. F. Fox.....Bluefield
P. R. Fox.....McComas
F. C. Goodall.....Lamar
C. H. Goodykoontz, Jr.....Bluefield
O. S. Hare.....Bluefield
W. W. Harloe.....Matoaka
A. H. Hoge.....Bluefield
F. F. Holroyd.....Bluefield
F. L. Holroyd.....Princeton
E. W. Horton.....Bluefield
D. L. Hosmer.....Bluefield
O. G. King.....Bluefield
D. B. Lepper.....Bluefield
H. B. Luttrell.....Bramwell
J. I. Markell.....Princeton
John McGuire.....Bluefield
Lawrence Pace.....Princeton
T. B. Pope.....Springton
C. J. Reynolds.....Bluefield
F. S. Richmond.....Bluefield
R. O. Rogers.....Bluefield
C. T. St. Clair.....Bluefield
C. T. St. Clair, Jr.....Bluefield
W. H. St. Clair.....Bluefield
W. H. St. Clair, Jr.....Bluefield
C. M. Scott.....Bluefield
J. R. Shanklin.....Bluefield
M. W. Sinclair.....Bluefield
W. C. Slusher.....Bluefield
I. M. Smith.....Princeton
H. G. Steele.....Bluefield
R. R. Stuart.....Bluefield
E. M. Tanner.....Bluefield
G. L. Todd.....Princeton
A. C. Van Reenan.....Bluefield
T. E. Vass.....Bluefield
J. R. Vermillion.....Princeton
T. U. Vermillion.....Matoaka
Uriah Vermillion.....Athens
A. D. Wood.....Bluefield
*S. R. Holroyd.....Athens

MINGO SOCIETY

R. M. Akers.....Kermit
G. W. Brewster.....War Eagle
T. D. Burgess.....Williamson
W. H. Burgess.....Williamson
G. T. Conley.....Williamson
G. W. Easley.....Williamson
R. F. Farley.....Delbarton
D. K. Freeman.....Glenalum
J. C. Gaskel.....Williamson
H. C. Hays.....Williamson
O. P. Hodge.....Matewan
G. B. Irvine.....Williamson
J. C. Lawson.....Williamson
J. D. Lee.....Williamson
Ernest McClellan.....Williamson
C. E. Peery.....Sprigg
Nathan Poliakoff.....Williamson
W. H. Price.....Chattaroy
F. B. Quincy.....Williamson
B. J. Read.....Red Jacket
R. A. Salton.....Williamson
E. P. Stepp.....Kermit
R. M. Teater.....Red Jacket
W. J. Walker.....Gilbert
S. G. Zando.....Williamson

MONONGALIA SOCIETY

Dorsey Brannan.....Morgantown
C. M. Bray.....Morgantown
M. H. Brown.....Morgantown
R. A. Burdette.....Charleston
Edwin Cameron.....Morgantown
Peter Caserta.....Morgantown
L. W. Cobun.....Morgantown
A. B. Collins.....Blacksville
F. P. Coombs.....Morgantown
S. W. Cottle.....Morgantown
H. M. Crow.....Morgantown
C. C. Fenton.....Morgantown
R. W. Fisher.....Morgantown
E. F. Heiskell.....Morgantown
W. H. Howell.....Morgantown
B. C. John.....Morgantown
Brinley John.....Morganotwn
C. E. Johnson.....Morgantown
W. L. Madera.....Morgantown
G. R. Maxwell.....Morgantown

T. Jud McBee.....Morgantown
S. J. Morris.....Morgantown
W. C. Moser.....Morgantown
G. W. Phillips.....Morgantown
J. C. Pickett.....Morgantown
D. M. Post.....Morgantown
C. B. Pride.....Morgantown
C. C. Romine.....Morgantown
F. T. Scanlon.....Morgantown
W. B. Scherr.....Morgantown
B. M. Stout.....Morgantown
R. R. Summers.....Morgantown
S. F. Talbott.....Morgantown
A. C. Taylor.....Mona
C. T. Thompson.....Morgantown
James Thompson.....Morgantown
J. H. Trotter.....Morgantown
E. B. Tucker.....Morgantown
E. J. VanLiere.....Morgantown
W. M. Warman.....Morgantown
R. E. Wharton.....Pursglove
F. R. Whittlesey.....Morgantown
*C. H. Maxwell.....Morgantown
*J. N. Simpson.....Morgantown
*C. B. Wylie.....Morgantown

OHIO SOCIETY

G. W. Abersold.....Wheeling
R. J. Armbrecht.....Wheeling
H. N. Azar.....Wheeling
R. B. Bailey.....Wheeling
J. T. Belgrade.....Wheeling
C. S. Bickel.....Wheeling
E. S. Bippus.....Wheeling
J. D. Bird, Jr.....Elm Grove
S. S. Bobes.....Wheeling
R. C. Bond.....Wheeling
J. R. Caldwell.....Wheeling
C. H. Clovis.....Wheeling
E. E. Clovis.....Wheeling
H. B. Copeland.....Wheeling
W. A. Cracraft.....Wheeling
F. H. Dobbs.....Wheeling
T. F. Downing.....Wheeling
A. C. Earnest.....Wheeling
L. B. Farri.....Wheeling
Ivan Fawcett.....Wheeling
M. Gaydosh.....Wheeling
M. A. Gaydosh, Jr.....Wheeling
R. D. Gill.....Wheeling
J. W. Gilmore.....Wheeling
E. F. Glass.....Wheeling
O. H. Griffith.....Wheeling
N. L. Haislip.....Wheeling
H. C. Harpfer.....Wheeling
C. J. Hawley.....Wheeling
H. H. Henderson.....Elm Grove
A. W. Higgins.....Wheeling
T. R. Hoge.....Wheeling
C. J. Holley.....Wheeling
A. L. Jones.....Wheeling
E. L. Jones.....Wheeling
W. K. Kalbfleisch.....Wheeling
C. H. Keesor.....Wheeling
M. B. Kelly.....Wheeling
John Kerr.....Wheeling
T. M. Klug.....Wheeling
R. H. Lewellyn.....Elm Grove
H. G. Little.....Wheeling
R. W. Lukens.....Wheeling
L. A. Lyon.....Wheeling
D. A. MacGregor.....Wheeling
W. T. McClure.....Wheeling
J. H. McColl.....Wheeling
A. V. McCoy.....Elm Grove
C. G. McCoy.....Elm Grove
W. C. D. McCuskey.....Wheeling
W. H. McLain.....Wheeling
William T. Morris.....Wheeling
J. H. Murphy.....Wheeling
A. E. Nolte.....Wheeling
A. L. Osterman.....Wheeling
R. M. Pedicord.....Elm Grove
E. N. Pell.....Wheeling
E. M. Phillips.....Wheeling
E. S. Phillips.....Wheeling
H. T. Phillips.....Wheeling
R. W. W. Phillips.....Wheeling
W. A. Quimby.....Wheeling
J. O. Rankin.....Wheeling
R. J. Reed.....Wheeling
R. J. Reed, Jr.....Wheeling
J. W. Ruckman.....West Liberty
W. P. Sammons.....Wheeling
H. R. Sauder.....Wheeling
W. M. Sheppe.....Wheeling
A. L. Shinn.....Wheeling
Harry A. Smith.....Wheeling
R. J. Snider.....Wheeling
O. M. Staats.....Wheeling
J. K. Stewart.....Wheeling
G. E. Strobel.....Wheeling
J. G. Thoner.....Wheeling
J. T. Thornton.....Wheeling
R. A. Tomassene.....Wheeling
S. W. Tretheway.....Wheeling
G. L. Vieweg.....Wheeling
Max Vieweg.....Wheeling
W. S. Webb.....Warwood
H. G. Weiler.....Wheeling
M. B. Williams.....Wheeling
Andrew Wilson.....Wheeling
M. F. C. Zubak.....Wheeling
*J. L. Eskey.....Wheeling
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R. H. Boice.....Parkersburg
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W. C. Camp.....Spencer
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O. J. Casto.....Parkersburg
Orva Conley.....Parkersburg
Ira Connolly.....Parkersburg
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E. W. Crooks.....Parkersburg
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W. R. Goff.....Parkersburg
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E. C. Hartman.....Parkersburg
E. B. Holmes.....Parkersburg
G. D. Jeffers.....Parkersburg
A. M. Jones.....Parkersburg
L. P. Jones.....Pennsboro
T. W. Keith.....Harrisville
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C. D. Kraft.....Parkersburg
R. D. Lattimer.....Parkersburg
A. R. Lutz.....Parkersburg
A. R. K. Matthews.....Parkersburg
J. R. McCollum.....St. Marys
R. B. Miller.....Parkersburg
R. C. Newman.....Spencer
B. B. Nicholson.....Parkersburg
R. H. Paden.....St. Marys
C. E. Park.....Parkersburg
B. S. Parks.....Parkersburg
F. C. Prunty.....Parkersburg
S. M. Prunty.....Parkersburg
B. O. Robinson.....Parkersburg
L. O. Rose.....Parkersburg
H. M. Rymer.....Harrisville
M. A. Santer.....Parkersburg
C. W. Shafer.....Spencer
A. R. Sidell.....Williamstown
P. C. Starkey.....Ravenswood
H. H. Veon.....Parkersburg
J. L. Wade.....Parkersburg
R. H. Wharton.....Parkersburg
R. S. Widmeyer.....Parkersburg
A. C. Woofter.....Parkersburg
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*C. L. Boyers.....Parkersburg
*Rolla Camden.....Parkersburg
*U. L. Dearman.....Reedy
*E. H. Douglas.....Petroleum
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*M. O. Fisher.....Parkersburg
*A. S. Grimm.....St. Marys
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*S. D. H. Wise.....Parkersburg

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Thomas Bess.....Keyser
O. V. Brooks.....Moorefield
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W. G. Drinkwater.....Gormania
V. L. Dyer.....Petersburg
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W. A. Flick.....Keyser
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J. B. Grove.....Petersburg
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W. F. McFarland.....Keyser
O. F. Mitchell.....Franklin
Glenn Moomau.....Petersburg
B. F. Moyers.....Mathias
J. A. Moyers.....Franklin
J. A. Newcome.....Keyser
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Raymond Reeves.....Piedmont
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J. F. Lehman.....Arthurdale
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C. Y. Moser.....Kingwood
W. H. Post.....Masontown
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D. D. Daniel.....Eccles
G. P. Daniel.....Glen Daniel
R. P. Daniel.....Pemberton
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E. S. Dupuy.....Beckley
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G. E. Gwinn.....Beckley
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L. M. Halloran.....Beckley
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E. H. Hedrick.....Beckley
G. C. Hedrick, Jr.....Besoco
L. G. Houser.....Beckley
D. B. Jarrell.....Beckley
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J. R. Leigh.....Winding Gulf
W. C. Mays.....Stanaford
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J. M. Teter.....Glen Hedrick
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J. O. Williams.....Ameagle
A. S. Wilson.....Beckley
C. C. Wilson.....Besoco
J. W. Whitlock.....Amigo
E. W. Wood.....Beckley
Everett B. Wray.....Glen White
Robert Wriston.....Beckley
*W. W. Hume.....Beckley

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F. L. McNeer.....Hinton
G. L. Pence.....Hinton
D. W. Ritter.....Hinton
W. L. Van Sant.....Hinton
*O. O. Cooper.....Hinton

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J. U. Kimble.....Grafton
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T. B. Gordon.....New Martinsville
Kent Hornbrook.....New Martinsville
C. M. Kimble.....Paden City
F. E. Martin.....New Martinsville
B. F. Matheny.....Hundred
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Abraham Koransky.....Glen Rogers
F. H. Penn.....Coval
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Public Health

The material in this monthly column is compiled and furnished by the West Virginia State Health Department

REPORTABLE DISEASES

The Public Health Council at its regular meeting in Bluefield on October 31, passed a regulation making it mandatory that pneumonia, typhus fever, undulant fever and diarrhea of the newborn be reported by physicians to the State Health Department, effective as of November 1, 1938. It is a well known fact to all public health officials that the control of communicable diseases depends primarily upon complete, accurate and immediate reporting to local health authorities. Without this information, it is impossible to put into effect the knowledge that is now available for their control. Most of us assume that reporting in this state is far from accurate but relatively few stop to analyze the situation or to determine just how incomplete it is as measured by minimum accepted standards and what the causes are for this laxity and what remedy should be applied to better the situation.

The following table, which is a ten year average of some of the more common communicable diseases reported to the State Health Department, shows quite clearly that we are far below the generally accepted minimum standard of cases reported per death:

Diseases	No. of Cases Reported	No. of Deaths Reported	No. of Cases Reported per Death	Theoretical No. of Cases per Death
Typhoid fever	835	207	4.0	10
Scarlet fever	2,552	51	50.0	75
Diphtheria	1,109	171	6.5	15
Measles	4,915	112	44.0	100
Whooping Cough	2,151	203	10.6	25

The entire list of diseases declared to be communicable and required to be reported to the State Health Department, as regulated by the State Public Health Council, is:

Actinomycosis, acute infectious conjunctivitis (ophthalmia neonatorum), ancylostomiasis (hookworm), anthrax, chancroid, chickenpox, cholera, dengue, diarrhea of the newborn, diphtheria, dysentery (amebic), dysentery (bacillary), epidemic encephalitis (lethargic encephalitis), German measles, glanders, gonorrhea, influenza, leprosy, malaria, malta fever, measles, meningococcus meningitis (cerebrospinal meningitis).

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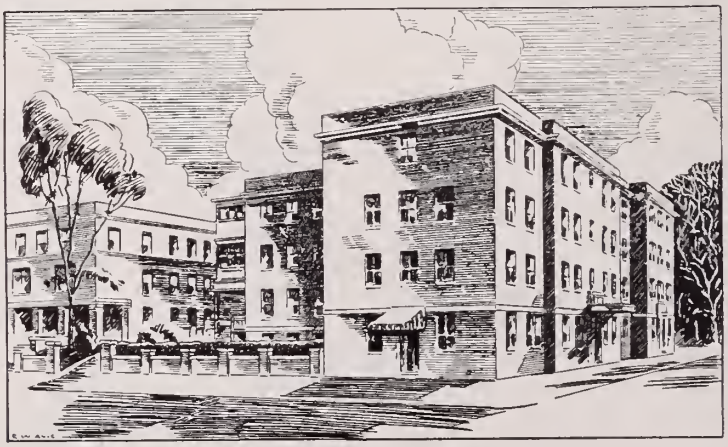

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J. Ross Hunter, M.D., F.A.C.S.
I. P. Champe, Jr., M.D.
W. O. McMillan, M.D.

Obstetrics:
U. G. McClure, M.D.

Obstetrics and Gynecology:
F. A. Clark, M.D.

Eye, Ear, Nose and Throat:
V. E. Holcombe, M.D.

Roentgenology:
V. L. Peterson, M.D.

Internal Medicine:
H. L. Robertson, M.D., F.A.C.P.
William C. Stewart, M.D.

Medicine and Pediatrics:
Hugh G. Thompson, M.D.

Orthopedic Surgery:
Randolph L. Anderson, M.D., F.A.C.S.

Urology:
Thomas G. Reed, M.D.

Pathology:
W. L. Hardesty, M.D.

Resident Physician:
M. Gearhart, M.D.
L. B. Matthews, M.D.

McMillan Hospital Training School; Sara Hamilton, R.N., Supt. of Nurses; Vera Sundheimer, R.N., Supervisor
Miss Margaret Pettus, R.N., Instructress Martha Jane Jordan, R.N., Supervisor Hilda Sayre, R.N., Supervisor

Mumps, paratyphoid fever, pellagra (see regulation 42), plague, pneumonia, poliomyelitis (infantile paralysis), rabies, Rocky Mountain spotted fever, scarlet fever, septic sore throat, smallpox, syphilis, tetanus, trachoma, trichiniasis, tuberculosis (pulmonary), tuberculosis (all forms), tularemia, typhoid fever, typhus fever, undulant fever, whooping cough, yellow fever.

MIDWIVES IN WEST VIRGINIA

In nine counties in West Virginia over 20 per cent of the births reported are delivered by midwives. The four counties with the largest percentage of midwife deliveries are Lincoln, 49. 5 per cent; Braxton, 37.4 per cent; Webster, 28.6 per cent, and Calhoun, 27.3 per cent. These figures show that there are areas in West Virginia where a large percentage of the infants are delivered without the advantage of a physician in attendance.

Total births reported in West Virginia in 1936—40,855.

Total delivered by physicians—37,290 or 91.2 per cent; total delivered by midwives—3,095 or 7.6 per cent; total delivered by others—470 or 1.2 per cent.

During the present year there are 332 registered midwives in West Virginia. In the midwife law as passed by the Legislature in 1930, under Section 2, a midwife is defined as follows: "A midwife shall be any person at least twenty-one years of age, other than a physician, who shall attend or agree to attend any woman at or during childbirth and who shall accept any compensation or remuneration for her services." The qualifications of such an individual are given in Section 3 of this law. These qualifications are so lax that about all that is necessary to obtain a license is to be over twenty-one years of age, able to read and write, present a clean appearance and to be recommended by a licensed practicing physician. The physicians of West Virginia should exercise more care in making these recommendations.

Questions are often asked regarding midwives, such as: "Why do we license midwives? Why are midwives necessary? Why don't they raise the standards of the midwife"?

By licensing midwives, the State Health Department is provided with a list of names and addresses of midwives in the state. By having such a list, it affords the department with a means of checking on the activity of such a group. A list of the names of midwives are supplied to local health departments so that they can check on the midwives' activ-

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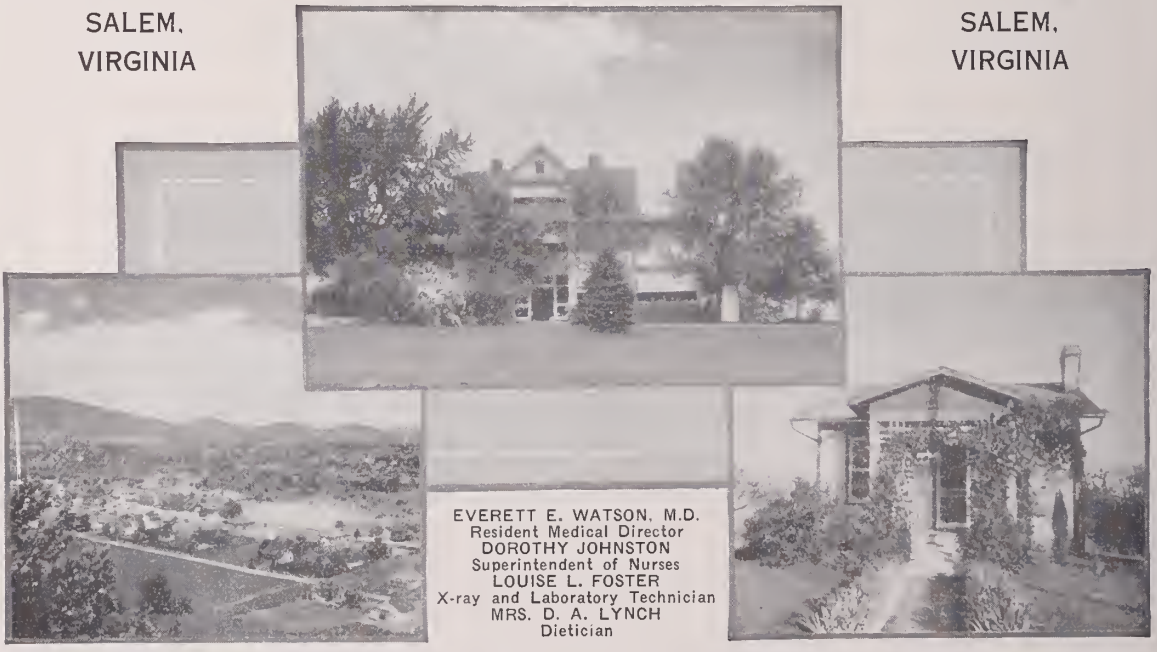

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ities. This list affords the Department of Vital Statistics and its local registrars with the name of those eligible to fill out birth certificates.

Midwives are definitely a necessity in certain parts of West Virginia because of the uneven distribution of physicians. There are many areas in this state where it is impossible to get a physician for attendance at all deliveries. Take Kanawha county for an example, with a population of 182,-636 and over 226 practicing physicians. Most of this population and most of these physicians are in and around Charleston. There are areas in this county where it is impossible to secure a physician for home deliveries, especially during the more inclement weather months. Midwives, therefore, deliver 4.4 per cent of all deliveries in this county. Another county in our state has only one practicing physician and here midwives deliver 21.7 per cent of the cases.

In regard to raising the qualifications of midwives, it is difficult to raise these qualifications unless some provision is made for training them. They represent a class of individuals who lack any financial means of getting training. There is no place in West Virginia, and very few places in the United States, where midwives can be trained.

Recently a case of ophthalmia neonatorum was reported in a mountainous county of our state. A representative of the State Health Department investigated the case. It was located off the hard surface road, back on a mountain top. Upon investigation it was found that the infant was delivered by a woman not registered as a midwife and, of course, no prophylactic was used in the infant's eyes. When the woman who delivered the patient was questioned she admitted that she delivered this patient and further stated that she did not want a license to practice midwifery as—"it was against her will to do such work." She stated that she was merely remaining with this patient until a physician could be secured. A physician was not secured so she had to deliver the patient.

The case of a death of a patient due to puerperal infection was reported in an eastern county. The patient had been delivered by a midwife. Our public health nurse in that district visited the midwife. She was found to be eighty years old and practically blind. Her equipment consisted of some cord and a pair of old scissors in a pocketbook. She was so ignorant that one was unable to discuss the problem of infection with her. When asked why she thought this woman had died, she replied that "I told that

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woman not to eat damson plums, them's what killed her." The end of this story is not complete with the death of this mother. There was left six younger children including the infant with only a drunken father to look after them. As a result the local Department of Public Assistance had to hospitalize the infant as a feeding problem and put the other children in foster homes. The community and state are still paying for this midwife's ignorance.

The State Health Department is occasionally bothered with men applying for a license to practice midwifery. Fortunately these have been excluded until we now have only one man in our state with such a license. (We do not include Joe Savage, for Joe has never renewed his license). It is difficult to understand why physicians will recommend these men for such a license. These men have no intention of confining their practice to midwifery. Recently a petition was received by the State Health Department signed by some 400 persons urging it to grant a midwife license to a man who has recently been enjoined by the courts to prevent his practicing medicine without a license. Another man was recommended by a physician in Kanawha county and this man's only experience consisted of a diploma from a mail order nursing school. Naturally the license was not granted.

Until such time that there is a sufficient number of physicians distributed over our state so that they can take care of all these deliveries, it will be necessary to have midwives in West Virginia. Even though our midwife law is lax, at least having such a law gives us a list of midwives over which some measure of control can be exercised.

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Woman's Auxiliary

LOGAN COUNTY

The Auxiliary to the Logan County Medical Society met at the home of Mrs. J. W. Thornbury at Man, West Virginia, on October 4. Mrs. D. S. Hess, president, presided at the meeting. Seventeen guests were present.

Dr. J. H. Thornbury, acting county health officer for Logan county, was the principal speaker. His subject was "Tuberculosis Club in Logan County." The value and possibility of forming such an organization was discussed by Dr. Thornbury.

Mrs. Hess discussed the Auxiliary plans for the coming year.

The December meeting of the Logan Auxiliary was held at the Logan Woman's Club rooms at one o'clock p. m. on Tuesday, December 6. Mrs. Hess again presided with sixteen members and sixteen guests present.

Dr. Andrew E. Amick of Charleston gave the principal address. His subject was "Modern Trends in Medical Economics." A general discussion of the topic followed Dr. Amick's talk.

(Continued on page xxxii)

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During the business session Mrs. C. A. Martin's resignation as treasurer was tendered and accepted and Mrs. J. W. Carney of Logan was appointed to the office.

MRS. J. LESTER PATTERSON, *Secretary.*

MARION COUNTY

The Woman's Auxiliary to the Marion County Medical Society met in Fairmont at the Hotel Fairmont on November 29, 1938. Mrs. John P. Helmick presided at the meeting at which fifteen members were present. Miss Marion Bell gave an illustrated lecture on the subject of "Tubercular Camp for Undernourished Children," with movies of the different stages of tuberculosis. There was a discussion about conducting an essay contest in the Marion county high schools on "Prevention of Contagion."

RALEIGH COUNTY

The Woman's Auxiliary to the Raleigh County Medical Society met on October 24 at the Beckley Hotel for a luncheon. Eighteen members attended and Mrs. Ross P. Daniel presided. Mrs. Scott A. Ford gave a report of the state meeting at White Sulphur Springs, in July, 1938. Mrs. Frank S. Harkleroad, state president, attended this meeting and Mrs. Ross P. Daniel read the report on the national meeting at San Francisco which had been prepared by Mrs. Harkleroad.

The Woman's Auxiliary to the Raleigh County Medical Society also met on November 28, with a luncheon at the Beckley Hotel. Mrs. Ross P. Daniel presided over the meeting at which seventeen members were present. There were two scheduled speakers for this meeting, viz., Mrs. C. G. Merriam, Beard's Fork, and Mrs. H. F. Troutman, Page, who were unable to attend on account of the inclement weather on that day. Mrs. Merriam had prepared a review of the book "Horse and Buggy Doctor."

Mrs. E. S. Dupuy, county Auxiliary president-elect, spoke on some national and state news excerpts.

Motions were made and carried to make contributions to the Raleigh County Boy Scout Camp; and to the "*Beckley Post Herald*" Christmas Toy Fund.

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RECENT DEVELOPMENTS IN THE SURGICAL TREATMENT OF LESIONS OF THE BILIARY TRACT*

By WALTMAN WALTERS, M. D., D. Sc.
Rochester, Minnesota

I SHOULD first like to point out that in diseases of the biliary tract, the nature and degree of the pathologic changes many times are out of proportion to the severity of the symptoms. The symptoms may be mild, but the pathologic changes may be extensive. Then, for example, among women particularly, the gall-bladder may be filled with stones but their presence may be unrecognized until röentgenographic examination is made during the course of routine physical examination. In many cases in which operation reveals subacute inflammation of the gall-bladder or even empyema caused by impaction of a stone in the cystic duct, the patient has never had colic, even of a minor grade, mild gaseous dyspepsia being the only symptom. On the other hand, the symptoms may be severe and the pathologic changes may be relatively slight; a history of typical attacks of severe biliary colic is frequent in cases in which acute or chronic inflammation of the gall-bladder is not associated with stones; these attacks usually disappear after removal of the gall-bladder. It seems evident, therefore, that the exact nature and degree of the pathologic change in the gall-bladder cannot always be determined preoperatively. The important thing, it seems to me, is the recognition of whether or not the gall-bladder is diseased and, if it is, whether the patient can best be treated surgically. If the patient's condition permits, the most effective method of treatment is surgical.

The accuracy of cholecystography emphasizes its great value in the demonstration of a poorly functioning gall-bladder. Yet it should not be forgotten that there is at least an error

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*From the Division of Surgery, The Mayo Clinic.

of five per cent in cholecystographic studies made even by röentgenologists of the greatest experience. We, at the clinic, place great dependence on the cholecystogram showing abnormal function and we attribute equal importance to the normal cholecystogram in a case in which a history of disease of the biliary tract is not obtained. When, however, there is a history of attacks of pain that are typical of biliary colic, or a history of gaseous dyspepsia that has persisted in spite of attempts to control symptoms by medical means, we believe that exploration of the biliary tract, as well as exploration of the stomach, duodenum and appendix, is advisable although röentgenologic studies of the gall-bladder, stomach and duodenum do not disclose an abnormality. Mention is made of the stomach and duodenum because of the frequency with which an ulcer on the posterior wall of the duodenum, which has perforated into the pancreas, may produce colic-like pain not unlike that associated with disease of the biliary tract or edema of the pancreas associated with a secondary disturbance of motility of the pancreatic portion of the common bile duct and a mild degree of jaundice. The decision as to whether surgical treatment should or should not be employed should not be too greatly influenced by the number of gallstones reported present on röentgenologic examination.

CHOLECYSTIC DISEASE SIMULATING PEPTIC ULCER

I have previously referred to the production of symptoms not unlike those of disease of the biliary tract by an ulcer which is situated on the posterior wall of the duodenum and which is perforating into the pancreas. It is interesting to note that the converse also is true: In cases in which there are various degrees of cholecystitis patients occasionally complain of symptoms somewhat like those of duodenal ulcer. However, if careful search is made for symptoms of disease of the biliary tract such as acute attacks of pain, the appearance of jaundice, chills or fever, a history of these additional symptoms frequently can be obtained.

CHOLECYSTIC DISEASE SIMULATING ANGINA PECTORIS

Innumerable patients who have unsuspected cholecystitis have been diagnosed as having angina pectoris when a cholecystogram and an electrocardiogram would have clarified the diagnosis. It is true that, occasionally, patients who have angina pectoris will have pain which is projected into the epigastrium and I recall, from my earlier medical teaching, the emphasis which was placed on the frequently fatal error of operating on the gall-bladder in such cases.

Operations on patients who relate a previous history of coronary thrombosis or on patients who have angina pectoris are serious procedures and, yet, the fact remains that experience at The Mayo Clinic has shown that when essential surgical procedures must be undertaken in such cases, the risk of operation has apparently been but slightly increased. In point of fact, Willius has stated that he can remember less than ten cases in which coronary disease has been the cause of the patient's death subsequent to operation. A detailed study of this is being carried out at the clinic at present.

I have reported previously on a series of so-called handicapped surgical patients[7 9 11 13] who had a history of coronary thrombosis or of angina pectoris who were operated on safely for extensive lesions of the biliary tract and stomach. Not only have these patients survived the operation and been relieved of symptoms, but also many of them have shown improvement in cardiac function. The same observation has been made by Fitz-Hugh and Wolferth, who were able to prove this by improvement in the electrocardiogram subsequent to operation. I think this element of reasonable safety in operations on patients with angina pectoris is worth emphasizing, not only because of the fact itself, but because, in recognizing that such is the case, it may lead to further study of the possibility of intra-abdominal lesions being present and this would disclose the presence of the diseased gall-bladder. One can imagine the feeling of a patient, who has had attacks of pain he

thought were due to angina pectoris and who has despaired of living very long, when this cardiac pain is completely relieved following removal of a diseased gall-bladder.

CHOLECYSTIC DISEASE IN THE AGED

Among other things, Brooks stated that advances in the treatment of the sick have increased the life expectancy in this country from thirty-nine years in 1850 to fifty-nine years in 1931. He further called attention to the fact that, in 1850, 2.6 per cent of the people of the United States were more than sixty-five years of age; whereas, in 1931, five per cent were more than sixty-five.

In 1937, I presented before the staff of the clinic[7] six patients chosen at random who had been operated on in the preceding few months for lesions of the biliary tract. All of these patients were more than seventy years of age and three were more than seventy-five. At that time, in looking up the literature, I found a very interesting paper by Bailey of St. Louis who, in 1934, reported on 185 operations performed on patients sixty to eighty-four years of age, fifty-one of them being between seventy and eighty-four years of age. In 85 per cent of these cases emergency surgical procedures were necessary and, yet, a low mortality of 7.6 per cent was obtained. In an equally interesting paper, appearing in April, 1937, Brooks presented a careful study of 293 operations performed on 287 patients who were more than sixty years of age. He called attention to the fact that, among older patients who required surgical treatment, in only a few cases could death be attributed to operation. Death was usually attributable to the fact that the patient had been allowed to become too ill before surgical treatment was attempted and, as in Bailey's series, many of the operations had to be carried out as emergency procedures.

In operating on elderly patients, it has been my experience that they do not present a greater surgical risk, as a rule, than do those in the younger age groups, provided that their general condition is satisfactory. In many of these cases, conservative nonsurgical methods of treatment have previously been instituted elsewhere because of what seemed to be the increased hazard of operation due to advanced age.

THE POSTCHOLECYSTECTOMY SYNDROME

Most patients who have persisting biliary colic subsequent to cholecystectomy have obstruction of the common bile duct; this may have been overlooked at the time of the operation on the gall-bladder or may have developed subsequently. Among these are cases in which stones have been allowed to remain in the stump of the cystic duct or in the common or hepatic duct, or they are cases in which sufficient inflammation has been present in the pancreas and intrahepatic ducts to produce enough stasis in the extrahepatic biliary tract for pain to continue. In some cases, postoperative biliary colic has been proved to be caused by spasm of the sphincter of Oddi or spasm of the duodenal musculature.[5,6] However, spasm of the sphincter of Oddi may occur in association with stones in the common duct and it cannot be inferred that spasm alone is the cause until the common duct has been opened and explored for stones. This error is more frequently made in cases in which postcholecystectomy colic has occurred without jaundice, the absence of which may lead some to believe that it excludes the possibility of stone in the common duct. That such is not the case, I wish most emphatically to emphasize. Trueman, studying a group of 219 patients who had stones in the common duct and who were operated on at the clinic in 1936 and 1937, found that a history of jaundice was absent in 35 per cent of the cases and that the so-called intermittent hepatic fever of Charcot had been absent in 63 per cent. The most surprising thing of all was the absence of typical biliary colicky pain in 22 per cent of the cases. In this latter group of cases, the outstanding symptom was dyspepsia, apparently the result of spasm of the duodenum produced by the stone in the common duct. I have seen several cases of this type in which, because of the distress which occurred immediately following eating, the

patients had starved themselves, losing a tremendous amount of weight.

If one is to prevent overlooking stones in the common duct, exposure of the duct should always be a part of the operation of cholecystectomy. This will not only assist in isolation of the cystic duct and prevent overlooking stones in it, but should indicate the necessity of opening and exploring it whenever it is enlarged, in spite of the fact that a history of jaundice or chills and fever has not been obtained and that a stone cannot be felt. Frequently, stones will be washed down from the intrahepatic duct in the gush of bile which takes place when the common duct is opened. The introduction of an exploring scoop into the hepatic duct and down into the lower end of the common duct and into the ampulla will bring out the stone. When the duct is explored with the scoop, it is important that it be passed through the lower end of the duct into the duodenum to exclude the possibility of a stone being overlooked in the ampulla and, also, to dilate the papilla of Vater.

INFLAMMATORY NONCALCAREOUS BILIARY OBSTRUCTION

It is a source of keen disappointment when exploration of the enlarged common bile duct does not reveal the presence of a stone especially if the patient has related a history of jaundice or if the patient was mildly jaundiced at the time that operation was performed. In such cases, although there is a possibility that the stone may have escaped into the intrahepatic ducts or through the lower end of the duct into the duodenum, in which instance the sphincter of Oddi will be found moderately dilated, the most frequent causes of biliary obstruction, provided that stone can be eliminated, are pancreatitis and cholangeitis secondary to inflammation of the gall-bladder. The infection extends from the gall-bladder to these structures, not only through the lymphatics, but through the wall of the cystic and common ducts. In many of these cases, the interior of the common duct will have the same appearance of gross inflammatory changes as those observed in the mucous membrane of the gall-bladder. On palpation, in these cases, the head of the pancreas will always be found enlarged, with brawny thickening, but it will not have the stony irregular hardness of malignancy. The bile, in such cases, is occasionally turbid and, when cultured, discloses a high incidence of infection with gram-negative bacilli of the colon group with or without staphylococci or streptococci. Confirmation of this diagnosis can be obtained by postoperative röentgenographic studies of the common duct after injection of radiopaque substances such as brominol or lipiodol, for there will be persisting dilatation of the common duct above the lower end which has been narrowed by the pressure of the swollen head of the pancreas. This stasis may persist for several weeks after operation.

ACUTE CHOLECYSTITIS

In the last four years the point of view of many surgeons in the United States has changed in regard to the propitious time for operation in cases of acute cholecystitis. In almost every case of acute cholecystitis, obstruction of the cystic duct, which is usually the result of impacted gallstones, is present. In cases of calculous obstruction of the cystic duct, two forces are at work in the production of the acute inflammation and its consequences: (1) obstruction of the passage of fluid from the gall-bladder, and (2) edema and passive congestion of the gall-bladder resulting from obstruction of the lymphatics and blood vessels. In cases of acute obstructive cholecystitis, the obvious pathologic course, unless obstruction of the cystic duct is relieved, is perforation of the gall-bladder. In this event, a localized abscess surrounded by omentum or a generalized intraperitoneal distribution of bile may result, or the gall-bladder may perforate into adjacent viscera. Not infrequently, the duodenum or hepatic flexure of the colon is in intimate contact with the gall-bladder.

Each case of acute cholecystitis presents individual problems, one of which is a determination of the safest time for operation. We, at the clinic, believe that earlier operation is worthy of consideration in all of these cases.

Certainly the statistics from some of the hospitals in the United States disclose a lower mortality and shorter convalescence following early operations than after delayed operations. The explanation in part probably is that, when obstruction of the cystic duct is present, edema and inflammation result, and necrosis with perforation takes place more frequently than can be anticipated during the period of observation before operation.

Before a decision to delay operation is made, the question, as to what delay will accomplish that immediate operation will not, must be considered in each case. In many respects, the lesion of acute cholecystitis resulting from calculous obstruction of the cystic duct is not unlike that of acute appendicitis resulting from obstruction by an impacted fecalith. In both instances, perforation, the formation of a localized abscess and general peritonitis may result. Wesson, Montgomery and I reported on a series of patients who had acute cholecystitis who came to operation at the clinic. The mortality was 3.9 per cent. This is an excellent record and compares most favorably with the best of other reported statistics of mortality following operations for acute cholecystitis.

It should be remembered also that the problem of subacute cholecystitis is different from that of acute cholecystitis, for perforation is likely to occur when inflammation is progressing toward the subacute stage. Bodily resistance to perforation during acute inflammation may result in the formation of adhesions between the gall-bladder and omentum, duodenum, or colon, making dissection of these structures difficult. In a discussion of cases of acute cholecystitis it is necessary, therefore, to state clearly that acute inflammatory lesions are those of a few hours' duration and the subacute ones are of several days' duration.

OBSTRUCTIVE JAUNDICE

A discussion of lesions of the biliary tract should not be terminated without briefly referring to some of the interesting developments in the treatment of patients who have obstructive jaundice. Recent work by Butt, Snell and Osterberg has shown that the administration of a substance called vitamin K, found in putrefied fish meal and alfalfa, and the restoration of the bile to the gastrointestinal tract, either orally or by the entrance of bile into the intestinal tract following removal of the obstruction, reduce the prolonged prothrombin time of the blood to a point within normal limits and, hence, reduce the hemorrhagic tendency. The value of a study of the prothrombin time of the blood as an index of hemorrhagic tendency among jaundiced patients has been emphasized previously by Quick, Stanley-Brown and Bancroft.

UNREMOVABLE CARCINOMA

I recently operated on a patient who had an unremovable carcinoma of the common duct. I was able to relieve the biliary obstruction by an anastomosis of the dilated duct above the carcinoma and the duodenum. Although this allowed bile to enter the intestinal tract immediately, on the fourth postoperative day there was some bleeding from the incision and the prothrombin time was found to be increased from the normal of twenty seconds to that of eighty-three seconds. After the administration of capsules of vitamin K, the prothrombin time decreased to normal limits within a period of twenty-four hours; the bleeding ceased. Interestingly enough, too, it was noted that, with the increased prothrombin time, there was an increase in the coagulation time of the blood. When the prothrombin time decreased to normal, the coagulation time did likewise.

Although, in all probability, the most vital therapeutic agent in both the preoperative and postoperative treatment of the jaundiced patient is the administration of blood and, next, glucose, I believe that the substance vitamin K also has proved itself to be of great value. There is no doubt that such methods of preparation have enabled practically all patients who have obstructive jaundice to be operated on with a reasonable range of safety. This has been true even among patients who

have clinical evidence of biliary cirrhosis secondary to obstructing stones in the common bile duct. The extent to which many such jaundiced patients can withstand surgical procedures is evidenced by the large number of patients in the older age groups; namely, those aged sixty-five years and older who have been able to withstand surgical procedures for the relief of biliary obstruction. One such patient, aged seventy-five years, who gave a history of disease of the biliary tract for more than forty years, had spontaneous perforation of the gall-bladder into the duodenum. A large stone remained in the gall-bladder and one remained in the common bile duct. The patient experienced subacute biliary obstruction which produced jaundice, chills and fever. At operation, after the gall-bladder was removed, a fistulous opening in the duodenum was closed and the stone was removed from the common bile duct. The patient's convalescence was complicated by the retention of urea in the blood on the third day following operation to the extent of 110 mg. per 100 c.c. of blood. Under therapeutic treatment of 10 per cent glucose in physiologic solution of sodium chloride this was reduced to normal within a few days and the patient experienced an uneventful recovery. Another point of exceeding interest and importance in discussing operations on jaundiced patients is the fact that, when extrahepatic biliary obstruction is present, not only is it possible to relieve the obstruction by surgical means but also in many cases in which, by virtue of the absence of a history of pain, the lesion might be suspected of being malignant, stone in the common duct is responsible for the obstruction. Its removal, of course, relieves the obstruction and is always followed by improvement in the function of the liver. Should the lesion prove to be an unremovable tumor of the head of the pancreas, an anastomosis between the biliary tract and the stomach or duodenum relieves the jaundice and itching. If the tumor of the head of the pancreas is of an inflammatory nature, usually no further evidence of biliary obstruction occurs. If the tumor is malignant, although the life expectancy of the patient will average only about fourteen or eighteen months, there are some patients who live for two or three years before the malignant lesion of the pancreas produces duodenal stasis and, during this time, they are free of jaundice.

DISCUSSION

Dr. R. J. Wilkinson, Huntington: The West Virginia Medical Society is indebted to Dr. Walters for this splendid paper. He has brought to our attention many practical points that are frequently overlooked by the internist and surgeon.

I am particularly glad he pointed out the occasional failure of cystographic study. While decidedly beneficial in the majority of cases, it has caused many innocent gall-bladders to be removed without affording the patient relief. The typical text-book case is essentially surgical and obviously it is not necessary to consider a cholecystogram, but the questionable case is entitled to the benefit of a careful gastrointestinal study in addition to the other diagnostic procedures before advising surgery.

It has been our observation that the dye exerts some questionable effect upon the liver cell, consequently we do not operate for several days, allowing the liver to fully recover. Since adopting this plan we think our patients have enjoyed a smoother convalescence. In those cases in which surgery was done immediately following the cholecystogram we noticed a decided fall in the blood chlorides. This is likewise true should the liver be traumatized.

I am glad Dr. Walters emphasized the fact that not infrequently so-called heart conditions are relieved by a cholecystectomy. I agree with him that where surgery is obviously indicated a demonstrable heart lesion is not a contraindication, for most of these cases stand surgery well. Undoubtedly, many cases are advised not to consider surgery on account of age with the result that the patient reaches the surgeon too late in many instances.

We heartily agree that age should not be seriously considered where surgery is indicated. I think the type of operation upon the biliary tract largely depends upon the surgeon's skill plus the condition of the patient. While we are agreed that a cholecystectomy is the procedure of choice, yet the fact that leading surgeons have stressed the importance of removal of the gall-bladder has indirectly been responsible for many deaths by reason of the inexperienced surgeon attempting to do the popular

thing. In operating upon a seriously ill patient with empyema of the gall-bladder it seems the method of choice is to remove the stone if easily accessible and drain. Should symptoms subsequently appear then an elective cholecystectomy can be done with exploration of the common duct if indicated.

Relative to the time of operating upon patients with acute cholecystitis: It has been our plan to treat these cases expectantly for forty-eight hours; if no improvement is noted we consider the condition surgical and unhesitatingly so advise the patient. In the majority of these cases we find a blocked cystic duct with hydrops or early empyema.

I am sure all of us have experienced the unpleasantness of a jaundiced patient bleeding and can profit by remembering the doctors experience with vitamin K.

May I again thank Dr. Walters for this splendid paper and ask him in closing to say something about the effect of dye upon the liver cell.

Dr. J. E. Cannaday, Charleston: Out of the general resumé of the subject by Dr. Walters I gather two extremely important points. One is that gallstones as an entity or as a general proposition may give cause to only mild symptoms such as dyspepsia, and not follow the typical symptom complex of colic, vomiting, and so on; again, that it is of the most extreme importance to remove all stones if possible, that one stone overlooked may keep up the whole trouble with the patient, until it is removed.

Dr. T. L. Harris, Parkersburg: I am diverting a little from Dr. Walter's paper, but with his permission I am bringing this up and he has said he would be very happy to discuss it. It has been my very unhappy privilege to have two cases brought to me which were operated upon in osteopathic clinics, in which the common duct was ligated and cut in both cases. Both these patients were in the early thirties. One patient came to me seven months following her operation, intensely jaundiced, with the liver approximately to the umbilicus. She was bleeding from all her mucous membranes. After about nine blood transfusions we got her in condition that we could open her abdomen. We located the stump of the common duct and placed a drain. She survived. We did not get any healthy bile. The first bile that came, I believe, was typical hydrops bile, evidently due to a destruction of the liver cells.

Our second case was one in which the duct had been ligated, but the patient had a biliary fistula. Her condition was not anything to brag on. After doing several transfusions we went in and dissected out the biliary tract, and following the general principles of Babcock we transplanted this biliary tract into the stomach. She has gone along very nicely for about nine months, but now she is beginning to have jaundice again with an enlargement of the liver.

I should like to ask Dr. Walters his judgment in handling that particular case.

Dr. Waltman Walters (closing the discussion): I appreciate very much the discussion which you gentlemen have given my paper. A point which has been brought up concerns the bleeding, and I referred to that in the paper because there has been a recent advance, the use of vitamin K, a substance which is obtained from putrid fishmeal. In talking with Dr. Snell a couple of days ago I asked, "Where does one obtain putrid fishmeal?" He replied, "You can get it at any fish and meat store; it consists of the scales and head and whatever else remains after everything edible has been taken from the fish."

The interesting consideration in this regard is that from such a substance, as well as from alfalfa, a substance is obtained which will reduce the time required for the production of prothrombin in the blood. Quick and Bancroft and Stanley-Brown of New York have shown that in patients having jaundice the time required for the production of prothrombin in the blood is the best indicator of the bleeding tendency. If, instead of being twenty minutes, which is approximately normal, it is longer than that, patients so characterized are likely to bleed, and they do so clinically. I was a little skeptical about the hemostatic effect of vitman K, but I must say its efficacy has convinced me in cases wherein the patient has had jaundice, has been affected by a longer-than-normal period of prothrombin production, and has bled subsequent to operation, that vitamin K has reduced the time required for the production of prothrombin, and stopped the bleeding.

I think Dr. Wilkinson has brought up some very interesting things in his discussion, and I quite agree that there are some cases wherein cholecystostomy is preferable to, and frequently safer than other measures.

There is a point concerning cholecystectomy that is worth remembering: cholecystectomy is always a better operation than cholecystostomy if the patient is in condition satisfactory enough for you to do it,

and the reason for this is that 20 per cent of patients, after undergoing cholecystostomy, will experience recurring infection in stones, and you will have to perform a second operation, which would not have been necessary had cholecystectomy been done.

Suppose this is the gall-bladder (illustrating) attached to the liver, which is here—if, in those cases referred to previously, you cut off the gall-bladder close to the liver and did not try to dissect it from the bed of the liver at all, but rather, cut off what you could get away from the liver, then you would have the open end of the cystic duct in which to insert a catheter. Here (illustrating) is what is left, attached to the liver. Usually, you will be able to dissect out the mucous membrane of the posterior wall of the gall-bladder attached to the liver, as was suggested many years ago by Dr. Haggard of Nashville. It is a procedure particularly easy to perform if the mucous membrane is subacutely inflamed, because there is sufficient edema and thickening of this membrane; or if you should so wish, you can burn this mucous membrane by means of the actual cautery (and if you use the actual cautery you must be careful not to allow too long a period of contact of the tip with the tissues, because that might produce an infarct of part of the liver); or if you are equipped and prepared to do electrocoagulation, you can use that technique, as suggested by Pribram. It was he, by the way, who first advocated and demonstrated the disintegration of calculi lodged in the common bile duct by the injection of ether into the duct after that structure had been opened.

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COMMON COLD

The common cold can cause infection in the sinuses, other parts of the respiratory tract and ears, Sidney N. Parkinson, M.D., Oakland, Calif., says in *The Journal of the American Medical Association* for January 21.

Nasal congestion during a cold interferes with circulation about the openings of the sinuses. This increases swelling and congestion within the sinuses and permits accumulation of mucopus which the hair-like projections in the respiratory tract are unable to remove. This complication is unfavorable to tissue defense.

"The purpose of local treatment during acute infection is ventilation in order to improve drainage," the author says. Shrinkage of the nasal mucous membranes with drugs opens the air passages. Free drainage then takes place if in the process of ventilation the hair-like drainage mechanism has not been damaged. This is why the selection of a physiologic drug is so important. Ephedrine in Locke's solution or its equivalent constitutes an efficient harmless agent for shrinkage.

The drug best reaches the membranes of the air passages with the patient lying on his side with his head bent downward exactly sidewise, using the shoulder as a fulcrum.

After from three to five minutes the head is rotated to face down to permit the nasal contents to escape from the nostrils. The head-low posture permits all important structures within the nose to come in contact with the medication and obviates any injury.

SOCIAL MEDICINE AND HEALTH INSURANCE IN EUROPE

By WELCH ENGLAND, B. S., M. D., F. A. C. S.
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THE terms "social medicine" and "health insurance" do not lend themselves readily to definition. In each of the forty countries which have adopted social medicine and health insurance their systems embody radically different things. To some they represent an idealistic Utopia in which free medical service is the central figure. To others they represent the ultimate curing of all disease and suffering, the solution to all health problems. To still others they mean a vast political issue involving a bureaucratic empire, with administrators, social workers, inspectors, clerks innumerable, all under government supervision, and receiving their appointments through political channels.

All of us, in our own way, are seeking first and foremost peace and security, with a more abundant life for a greater number of people. Mankind generally is undergoing one of the greatest economic, social, and political upheavals in the history of civilization. Governments, institutions, religious organizations, and all "time tried" systems are being swept aside by this ever growing demand for change, vitally affecting the welfare and contentment of organized society. This is particularly true of America, and with these vast evolutionary and revolutionary changes one can see and feel the demand for some form of health protection, sickness insurance, and their inseparable twin—"social medicine." Government, wage earners, labor unions, social workers and reformers all have a solution, yet the problem rightfully belongs to the medical profession, and it is our inviolate duty and privilege to the public and ourselves, to formulate any program in this direction which might be proposed for adoption.

Realizing that these problems were inevitable the writer spent three months in Europe in 1937, studying the systems adopted and in use in the British Isles, France, Germany, Belgium, and Italy. The particular problems studied were:

1. The patient or individual served.
2. The efficiency of medical practice by the panel physician.
3. The relation of the system to the private practitioner.
4. The effect on medical research and progress.
5. The attitude of government and its policies of administration.

The approach to the problem was made in three ways, viz:

1. The Social Security Board in Washington—Here, through interviews with Mr. Bane, the director, and Dr. I. S. Falk, the chief of health statistics, letters of introduction were secured to the various ministers of health and governmental agencies in the countries whose systems were to be studied.
2. The American Medical Association—through the courtesy of the Board of Trustees, letters of introduction and certification to the heads of the various medical societies in Europe were secured.
3. Interviews and questioning of physicians, business men, large and small, heads of industrial concerns, insurance collectors, taxi drivers, hotel employees and "the man in the street." Thus it was felt that a broad viewpoint could be secured from the government, the physician, and the individual served.

THE AUTHOR

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BRITISH ISLES (England, Ireland, Scotland)

Compulsory health insurance was adopted by the British Isles twenty-seven years ago, being forced through single-handed by Lloyd

George as a matter of political expediency by which he was elevated to the Prime Ministership of England. It now covers or serves eighteen million people, one-third of the total population of England, Wales, Scotland, and Ireland, and is compulsory for all wage earners whose income is $1250.00 (250£) per year or less. Notice that it covers only the wage earners actually employed, but does not cover the wives, children or other dependents.

COLLECTION OF FUNDS

The necessary money, or cost of the system, is collected or distributed as follows:

1. From the employees nine cents per week.
2. From the employer nine cents per week.
3. From the government:
   a. One-seventh of the above for males.
   b. One-fifth of the above for females.

All money is collected over the pay roll of the employer by government stamps which are purchased from the government. These stamps are attached to the card or pay envelope of the employee, and serve to certify the employee to the panel physician of his choice, to the friendly society or insurance company which pays his sickness benefits, to his druggist, etc. All money thus collected is deposited in two separate funds or pools.

1. For medical benefits.
2. To the approved society, friendly society or insurance company, which administers and pays all sickness insurance claims. Thus all benefits, other than actual medical care, are administered, controlled and paid by these societies.

The medical benefits are administered as follows:

When the insured has received his registration card he must choose a doctor who is willing to do panel practice, and place his name on the doctor's panel or list. All licensed physicians are eligible to do panel practice if they so desire by application to the minister of health. At the same time the insured chooses his sick benefit society and registers with such society, which collects and administers his sickness insurance and all other benefits with the exception of medical service. The payment for medical service is administered by a committee, which is called the health insurance committee, there being such a committee in each county, city, town or borough in which the insured lives. These committees are composed of twenty to forty persons as follows:

1. Three to five are appointed by the friendly society or insurance company, and supposedly represent the insured. The claim here is that the insured has representation on his health insurance committee.
2. One to five are appointed by the county, city, town or borough councils, and are thus political appointments.
3. One doctor is appointed by the minister of health. (Political appointment).
4. Two doctors are appointed by the local medical society.
5. The remaining members, up to five or six, are appointed by the minister of health. Thus there are three or four doctors on the committee of thirty to forty who administer all claims strictly for medical services. It can readily be seen that this committee can be, and usually is, controlled by the friendly or approved society and the political power of the community which it serves.

INFLUENCE OF SOCIETIES

This can better be appreciated when it is realized that these separate societies or insurance companies have memberships up to 150,000 and surplus financial reserves running well into the millions of dollars. These societies are powerful organizations and wield a tremendous political force. It, therefore, becomes apparent that the panel doctor is almost entirely at the mercy of his health insurance committee, which is numerically dominated by political appointees of the approved societies.

The only recourse the panel physician has from decisions of the health insurance committee is the British Medical Association. This Association resolves itself largely into a pseudolegal body, representing the insuring

practitioner in all controversial matters. The final decision rests with the minister of health, and it is apparently a constant problem of the British Medical Association to secure rulings which are, even in a small way, favorable to the physician. This Association speaks for all of the panel physicians in Ireland, Scotland and England. It is well organized and closely knit, rendering an inestimable service to the panel physician, but let it not be forgotten that its opposition by the various health insurance committees, political organizations and six thousand approved societies with five hundred million dollars reserve resources, represents a political pressure which is apparently insurmountable. So much for the basic structure of administration of medical benefits.

The insured is entitled to the following:

1. Medical care including drugs in the British Pharmacopeia.
2. Sickness and disability insurance.
3. A lump sum for the birth of a child.
4. Limited dental and surgical appliances.

The medical care provides only for a general practitioner. Such a panel doctor may have up to twenty-five hundred wage earners on his panel and is paid $2.25 per year for each employed person, the money being paid in quarterly installments. He is allowed to prescribe or dispense medicine up to seventy-five cents per year per insured person, but above this amount he is subject to discipline by his health insurance committee. An overcharge for medicine above the seventy-five cents per year may be charged back to the doctor against his $2.25 for yearly medical service. This may be applied equally whether the medicine is dispensed or prescribed through a druggist. The ruling is not always rigidly adhered to and may be made more flexible to meet emergencies or individual problems. Dependents of insured are not covered. Therefore, with a panel or list of two thousand wage earners, and assuming that each wage earner has an average of two dependents, the panel doctor would be ethically and morally responsible for medical services to six thousand people. Hospitalization, specialists, x-ray and clinical laboratories are not included. A limited number of vaccines, serums, etc., may be furnished at the discretion of the approved societies.

Panel physicians are usually not eligible or qualified for hospital staff appointments, and all cases requiring hospitalization are removed from his care during their required hospital period. The doctor must keep a record of all illnesses, diagnoses, estimation of disability, number of visits to home and office, drugs by name, quantity and cost, and must certify (or report in writing) to the approved society or insurance company.

CHOICE OF DOCTOR

The insured may change panel doctors every three months upon application to his approved society. It is his privilege to call or consult any private practitioner or specialist whom he desires and can afford at his own expense. This widespread practice has established a marked class distinction within the medical profession itself, between the panel doctor on the one hand and the private practitioner or consultant on the other.

The family doctor as we know him in the roll of intimate friend and counsellor is gone forever in social medicine. This attitude is best explained by a waiter in one of London's leading hotels, who said, "Oh, yes, I go to my panel doctor for a bottle of laxative or something for a cold, but if I am sick I go to a Harley Street specialist." Harley Street houses the great number of London's leading private practitioners and consultants. Similar statements are almost universal in all strata of society which one is able to contact in such a study.

There is no better method of summarizing the practical points of operation of compulsory health insurance in England than to point out the weaknesses and "pitfalls" which are agreed upon by the government, insured, and doctor.

Let us now enumerate these weaknesses with which all agree:

1. Only general practitioner provided, with no surgeon, consultant or specialist.

2. No hospitalization, x-ray, laboratory or other necessary diagnostic facilities available. Patient is sent to a hospital, taken away from the panel doctor and cared for by the staff of the hospital. Panel physicians are usually not capable of, nor eligible to hospital staff appointment. All hospitals rigidly adhere to select, closed staffs, with senior, associate and junior surgeons.

3. Only wage earners can be insured. Panel doctors are morally obligated to look after dependents, but no provision is made for their being paid for this service.

4. Approved societies (friendly societies, industrial insurance societies, labor union societies): Six thousand societies—surplus five hundred million dollars. These societies are living monuments to the political philosophy of Lloyd George. As one physician so aptly expressed it, "They are leeches becoming overgorged on the life blood of the physician, whom they through politics, control. They are like vultures feeding on the decaying flesh of suffering humanity." Everyone except the approved societies agrees that they have no place in compulsory health insurance. Why are they not removed? You cannot beat five hundred million dollars which is organized into a political machine. Time will not permit their excuse for existence.

5. Inadequate payment to the physician—$2.25 per year per wage earner. This schedule of fees is set by the minister of health. His office is elective. The approved societies oppose any attempt of the British Medical Association to revise this schedule upward.

6. The doctor is allowed a panel of twenty-five hundred wage earners, without consideration of the dependents. Thus a panel physician will see two hundred patients daily, and the average office call lasts three minutes.

7. Sickness insurance (sick benefits): As part of the medical care the panel doctor must report to the approved societies (certify) and get men back to work. These societies are more interested in getting men off insurance than getting men well. Apropos of this, there is one other branch of the administration of the National Insurance Act which has not been discussed, viz: the regional medical officer.

These R. M. O's., as they are called, are medical doctors and government employees. They are appointed by the minister of health and paid by the government a salary ranging from four to eight thousand dollars per year, depending upon their length of service and rank. There are thirty such officers in England, with forty deputies, making a total of seventy. The duty of the R. M. O. is to examine the insured who is ill and get the man back to work, also act as free consultants to the panel doctor. They may also examine and treat the insured's dependents, if they so choose, but this is not a part of their prescribed duty. Their chief duty seems to be to protect the reserve funds of the approved societies and to check the certification of the panel doctor. They have no disciplinary power over the doctor, except indirectly through the approved society, but they can tell a patient that he is physically able and must return to work, thus removing him from sickness insurance. This, at times, saves unpleasantness for the panel doctor and prevents his losing an insured from his panel or list. The relationship and degree of cooperation between the R. M. O. and panel doctor shows wide variations, apparently depending upon personality and ability of each. As a general rule the R. M. O. seems to feel that the panel doctor serves his people rather poorly, but his chief complaint, however, is lax certification to the approved societies and the fact that they do not have disciplinary powers over the doctors.

The one major issue, dominating all others throughout the entire Compulsory Insurance Act of England, is the unquenchable desire for more power arising from every department of administration.

FRANCE

The National Compulsory Health Insurance Act was enacted in France in 1930. Health insurance began, as in England, 75 years ago, with the formation of "sick clubs"

or health insurance societies, and in 1930 these clubs numbered twenty-two thousand, with a membership of seven million. It was a gradual process of the French Government taking it over by consolidating these above clubs and societies into the National Compulsory Health Insurance Act. The Insurance Act now covers twelve million people, and is compulsory for all wage earners between the ages of sixteen and sixty whose income is twenty-one thousand francs per year (about eleven hundred dollars) or less.

The insured is entitled to sickness insurance, maternity, invalidity, old age pension, workman's compensation, unemployment relief, medical attention of all forms, including free and complete hospitalization. It covers the wage earner, his wife and all children under sixteen years of age not employed.

The funds are collected as follows:

1. From the employee, four per cent of his wages.

2. From the employer, four per cent of the employees' wages. Thus employer and employee together pay eight per cent of the employees' basic wages collected over the pay roll of the employer by pay roll deduction.

3. Remainder paid by the government. Of the total funds thus collected approximately 50 per cent is spent on medical services, including drugs, hospitalization, x-rays, laboratory, vaccines, serums, etc. The remaining 50 per cent goes to old age pensions, unemployment insurance, workman's compensation, invalidity, etc.

The medical service is administered by a council of eighteen to twenty-four members in the town or subdivision in which the insured resides. Under the Act this council agrees to pay 80 per cent of all bills presented for medical services regardless of character. There is a free choice of doctor, with practically every eligible physician participating, whether he be general practitioner, surgeon, specialist, or consultant. The patient has a choice of hospitals. Drugs, x-rays, laboratories, serums, surgical appliances, etc., are furnished as ordered by the physician.

It is interesting to note the action of the French Chamber of Medicine or the French Medical Association when they realized that the Compulsory Health Insurance Act was inevitable. As in every system adopted in Europe there was a political fight for control of administration of the insurance act. The politicians wanted the medical program under their control, but the doctors said "no." The French Chamber of Medicine had only twenty-five thousand members, representing 80 per cent of the licensed French physicians. With the opposition of twenty-two thousand "sick clubs" and the tremendous political pressure brought to bear, the French Medical Association demanded that certain principles be incorporated in the Act or the doctors would not provide medical service.

The following principles laid down by the French Medical Association were made a part of the Compulsory Insurance Act:

1. Every licensed physician may treat insured and dependents.

2. A free choice of doctor, and vice versa, with patient permitted to change doctors when he chooses.

3. Complete freedom to prescribe what he chooses, with no "strings" or supervision.

4. The insured to pay the doctor by a scale of fees laid down by the French Medical Association.

5. The French Medical Association to have complete control over the medical services with sole disciplinary powers over the doctors.

6. Confidential relationships between the doctor and patient maintained at all times, with no professional reports being made available to government or sick benefit societies.

Note that legally there can be no confidential relationships or professional secrets between doctor and patient in England, Germany or Italy. The above six principles, which were written into the Compulsory Insurance Act as demanded by the French Medical Association, greatly favor the doctor and from many angles seem to be good for the patient, but the abuse of these principles has uncovered many of the pitfalls in the system. Let us

now turn to some of the more glaring complications and difficulties.

The patient chooses his own physician who renders necessary medical service, and with the completion of the illness the doctor gives the patient:

1. A statement for his services, or an itemized bill representing a record of his attendance.

2. A list of medicine prescribed.

3. A certificate of fitness for return to work. This is presented to the medical council of the sick benefit society who in turn agrees to pay 80 per cent of the doctor's bill. The patient himself pays the doctor the other 20 per cent. Thus the doctor can demand that this additional 20 per cent be paid before he will certify the patient for sickness insurance. Furthermore, with a free choice of doctor and no supervision, bills can easily be "padded" and patients allowed longer periods of convalescence than are indicated, thereby depleting the funds both through increased medical cost and prolonged sickness insurance.

During periods of depression and unemployment the costs are appalling. From the government standpoint this is expressed by the following formula:

Complete choice of doctor + no medical certification = malingering and unethical practice.

To prevent this the sick benefit societies have appointed three hundred of their own doctors to check the sick persons and the medical services rendered by his physician. It seems that the doctors have abused the system so badly through medical secrecy and lack of supervision that in many cases the medical inspectors must give the correct diagnosis and treatment instead of the regular physician. It only means that the doctor is not honest with his own medical society, and both doctor and patient are combining forces to defeat the French Government and the sick benefit societies. This practice has depleted the reserve funds until in many cases the government and sick benefit societies cannot pay 80 per cent of the bills for medical services, and in one year, 1935, could pay only 50 per cent of these bills. The patient thus had to pay the doctor the other 50 per cent instead of the usual 20 per cent. The doctor is in position to force payment of his bill by refusal to certify the patient for his sickness insurance until he has been paid.

From a financial standpoint this is good for the doctor, but it becomes apparent that the type of medical service rendered and the cost must defeat the entire Compulsory Insurance Act. It certainly tends to make dishonest doctors out of otherwise honest practitioners. Thus a practice may be built, not on professional ability, but rather on the physician's success in acting as financial agent for a patient in securing the maximum amount of sick benefits, compensation and unemployment insurance. It may be best summed up by the following statement made by one of the secretaries of the French Chamber of Medicine:

1. The doctors are satisfied.

2. The people are usually, but not always satisfied.

3. The government is not satisfied. It cannot continue to carry the tremendous expense.

4. The sick benefit societies and insurance companies are not satisfied. They object most to secrecy between doctor and the patient and thus explain the three hundred necessary medical officers employed to check practice and records of the recognized medical profession.

GERMANY

National health insurance was inaugurated in Germany under Bismarck in 1883. Space will not permit the historical background other than the statement made in Germany that it was voluntary from 1900 to 1934. With the coming of Hitler and the National Socialistic Party it was made compulsory in 1934. There seems to be some controversy over whether or not national health insurance was compulsory since its inception under Bismarck in 1883.

It is nearly impossible for an American, living under a democratic form of government, to understand the workings of a dicta-

tor-ruled nation. One must keep constantly in mind that the individual or family is not the unit of society; that individuality in thought, effort or initiative cannot exist unless directed and controlled by governmental decree. This is not a biased opinion, but rather a statement of fact in that the system of health insurance may be better understood. It is something which must be seen and felt before it can be adequately described.

Compulsory health insurance in Germany covers forty-five million of the sixty-seven million people, or two-thirds of the population. This applies to greater Germany, since the study was made before the annexation of Austria and Czechoslovakia. It is compulsory for all workers earning 7,200 marks (about $2880.00) per year or less. Since no German is allowed to make near this amount of money legally, the Act becomes universally compulsory for practically all German citizens.

The cost distribution is as follows:

1. Wage earners making 3,600 marks ($1440.00) per year or less pay one-half of the cost.

2. Employers of wage earners making 3,600 marks ($1440.00) per year or less, pay the other half of the cost.

3. Wage earners making 3,600 marks to 7,200 marks ($1440.00 to $2880.00) pay the total cost.

4. The government pays nothing, but collects and administers all money through the Chamber of Medicine.

The Chamber of Medicine is composed of fifty thousand doctors, forty-two thousand of whom are allowed to do national insurance work. Membership in the Chamber of Medicine is compulsory for license to practice insurance medicine. The Chamber of Medicine is controlled by a committee of three:

1. A president elected by the insurance doctors.

2. A secretary or chief medical officer appointed by Hitler.

3. The minister of labor, who is a member of Hitler's cabinet, and is also appointed by Hitler.

This committee sets the scale of fees for all medical service, settles all controversial questions, and reports direct to Hitler. Either a patient or doctor may appeal to the committee, but there is no recourse from the committee's action.

The insured is entitled to free choice of physician, including specialist. There is no panel and the patient goes when and to whom he pleases. All dependents are covered, but apparently there are few dependents in Germany. Most of the manual labor seems to be done by old men and women, together with small children. Everybody works and there is no unemployment.

Drugs are furnished and administered on prescription only. Hospitalization, laboratory, serums, surgical appliances, etc., are paid for by the Chamber of Medicine. Everything is checked carefully and only the cost of production allowed. The doctor presents a detailed account of his services to insured persons every three months. This bill is presented for payment to the Chamber of Medicine. It is checked only by the analysis of all of the doctor's accounts, thus striking a broad average income for the group. Payment is made on the basis of this average.

The doctor may be disciplined by:

1. Cutting his bill.

2. Removal from insurance practice for one year.

3. Removal from practice permanently, including revocation of his license.

4. Concentration camps.

There is no private practice with the exception of foreign consultation and fees for teaching foreign doctors. This was the chief source of income of the old professors enjoying wide reputations until recently. However, even this latter privilege is now controlled through staff appointments to government hospitals and other teaching institutions.

Each doctor who participates in national health insurance practice must pay for this privilege as follows:

1. To the Chamber of Medicine, 100 marks ($40.00) per year.

2. To the general health insurance fund, two per cent of income derived from health insurance.

3. To the family insurance fund, one and one-half per cent of his net income.

This last one and one-half per cent is deposited into a family helping fund. From it the doctor receives 50 marks ($20.00) per month for each child born in his family after the first two children. He is paid this 50 marks ($20.00) monthly until this third child reaches twenty-one years of age. An effort is being made to include the second child. In event of death of the doctor his widow receives 50 marks ($20.00) per month for each child until they reach the age of twenty-one. This seems to be an excellent plan for protection of the doctors' families.

Is the system working in Germany? Are the people satisfied? Are the doctors satisfied? One does not ask these questions in Germany.

CONCLUSIONS

A synopsis of the systems of national health insurance and social medicine as operating in England, France and Germany has been given. Space will not permit the covering of Italy, Belgium, and the smaller countries, but the salient points of each follow the general lines of the systems as described above. Every effort has been made to state facts with the total absence of impressions and conclusions. The temptation is great to close this paper leaving the reader to draw his own conclusions, but having acknowledged in the beginning that the entire study was made primarily to determine the ultimate effect of social medicine in Europe, on that which may be proposed for adoption in America, there are certain impressions and conclusions which immediately make themselves apparent:

1. The general standard of living in Europe is so much lower than that in America and poverty so much more prevalent that these facts alone would tend to demand and support social medicine and health insurance in Europe which the average American would not tolerate. Even where poverty is not the major factor, class distinction among all groups of people, which has been prevalent for centuries, would tend to foster social medicine which would not be workable in America.

2. In every country it was proposed through political expediency and has a tremendous political appeal.

3. It has provided some form of sickness insurance and medical service to the indigent and to those in the low income brackets in Europe.

4. It has at times apparently prevented revolution and relieved the government of direct dole.

5. There is no one system studied which could be adopted and made workable in America.

6. In every country where social medicine has been adopted on a voluntary basis of merit it has failed and is apparently workable only when operating on a compulsory basis.

7. The administrative cost, where adopted, is usually out of all proportion to services rendered and benefits derived by the insured.

8. The cost of administration is in direct proportion to the number of social agencies, administrators, bureaus, etc., which are interposed between the doctor and the patient.

9. In all countries studied where social medicine is in operation there is a constant desire and effort to secure more power by all branches of administration and all interested parties.

10. The administration of social medicine and health insurance should be entirely separated from all other social security measures, including old age pensions, unemployment insurance, etc.

11. It must include all dependents.

12. It must embrace all branches of medicine, including x-ray laboratory, and other diagnostic facilities, as well as hospitalization.

13. Social medicine has retarded medical research and medical progress in Europe.

14. It has markedly lowered the standard of the general practitioner.

15. It has developed class distinction within the medical profession, with the panel or

list doctor on a much lower plane than the consultant, surgeon, or specialist.

16. Hospitals operating on a basis of "closed staffs", with senior, associate, and junior services tend to develop better trained surgeons, consultants, and specialists, but poorer family doctors and general practitioners.

17. The indigent and low income brackets in Europe do not receive as good medical care as in America.

18. The success of any program of socialized medicine depends largely upon an active, well organized medical society in the country where such system is operating.

19. In any country where social medicine is contemplated the medical association should be prepared either to resist the proposed system or to present an intelligent workable program.

20. Medical opposition may be too successful as in France where the doctors secured their every demand and are defeating their own system by inadequate supervision.

21. Where socialized medicine is now operating the position of the doctor is in proportion to the amount of organization and leadership offered before the adoption of the act and not afterwards.

22. Health insurance and social medicine, where operating under government control, must be considered as a government monopoly.

23. The administration of health insurance and social medicine seems to be much easier under a dictator form of government than in the democracies.

24. America will eventually have a broadening of the Social Security Act to embody further socialized medicine, and, as in Europe, it will be proposed as a part of a vast social and political issue.

25. The medical profession in America must be prepared to demand the leadership in any system thus proposed.

If this paper will serve to provoke thought and meditation on one of the greatest problems facing the American public and the American doctor it will have served its purpose. As previously stated the systems now operating in England, Germany, and France have been described on a basis of facts rather than impressions and conclusions. If you, as the reader, consider the conclusions as controversial or cannot agree with them, that, too, will serve to crystallize active thought and discussion, which in the final analysis serves as the stepping stones in arriving at clear, comprehensive impressions and decisions relative to this impending national issue, health insurance and social medicine.

717 Market Street.

FLYING HOSPITALS

Flying hospitals—speediest and newest of Uncle Sam's medical aids — are maintained at eight air bases along both coastlines and the Gulf of Mexico, according to an article by S. R. Winters, of Washington, D. C., in the February issue of *Hygeia, The Health Magazine.*

Twenty-one seaplanes are poised ready to answer medical calls from ships at sea. Aid to injured sailors and passengers and removal of persons from disabled vessels are the usual services they render. "NCU," meaning "any Coast Guard unit," is the radio call that summons one of these planes. This request for medical assistance is given right-of-way.

The idea was first put into practice a few years ago when five seaplanes, known as flying lifeboats, began their task of rescuing human lives out at sea. The planes carry a crew of four, and twenty passengers may be accommodated in an emergency. They are constructed to make landings on rough seas if necessary. Each one is equipped with a collapsible lifeboat and has stretchers for removing the injured from ships. The planes are met at their landing field by ambulances to rush the patients to the nearest hospital.

In addition to these services the planes endeavor to warn people of impending danger and assist extensively during floods and other disasters by transporting serums and biologic supplies and scouting the afflicted areas for purposes of operation planning.

It is not as a destroyer of property or as a consumer of food but as a health menace that the rat does the greatest harm.—*Hygeia.*

RUPTURED UTERUS*

By W. E. HOFFMAN, M. D.
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SINCE March, 1934, there have been six cases of ruptured uteri on the Obstetrical Service of the Charleston General Hospital. Two of the cases ruptured in the hospital and four were transferred to the hospital. We may consider ruptured uteri one of the most serious complications met with in the practice of obstetrics. There are very few emergencies which call for more acuteness of judgment and rapidity of action. Fortunately, the accident is infrequent and is found more often in the multipara.

The six cases I wish to review, are divided into two groups. Group I—patients who have been delivered by previous cesarean section; Group II—those who had an oxytocic while in labor.

GROUP I

Case 1: White female, age 18, gravida II, para I. Her first pregnancy was terminated at eight months by cesarean section for eclampsia. She was admitted to the hospital at 2:45 a. m. in labor, the cervix was effaced and admitted two fingers, the head was at the level of the spines. At 7:30 a. m. she complained of continuous pain. The abdomen was very tender on palpation. There was no shock. Due to the continuous pain and tender abdomen, a diagnosis of ruptured uterus was made. Operation: On opening the abdomen a small amount of free blood was found. At the tip of the old cesarean scar was a hole which would admit the tip of the little finger. The old scar was incised and a living baby delivered. Classical cesarean section with sterilization was performed. Results: Living baby. Mother's temperature was 101 on the first and eleventh days, otherwise uneventful recovery.

*Read before the Monongalia County Medical Society, Morgantown, October 4, 1938.

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Case 2: White woman, age 26, gravida III, para II. She had had a cesarean section 19 months previously for a central placenta previa when she was seven months pregnant. She was admitted to the hospital for delivery and given one ounce of castor oil. She began having labor pains at 2:40 a. m. At 3:30 a. m. she had severe abdominal pain; the abdomen became very tender and she was in shock. Diagnosis was ruptured uterus. Operation: The abdomen was filled with blood. The stillborn fetus and placenta were delivered. The uterus was ruptured completely at the site of the former cesarean scar. The uterus was sutured along the rupture. Her highest temperature was 102 on the second day. She left the hospital on the thirteenth day.

Case 3: White female, age 29, gravida IV, para I. First pregnancy was ectopic with removal of right tube. Second pregnancy terminated by cesarean section following eighteen hours of hard labor without progress. A large living baby weighing nine pounds was delivered. It was noted that the body and fundus of the uterus were very thin. Her third pregnancy terminated in an abortion. The last menstrual period was April 12. Estimated date of confinement, January 19. She was advised to go to the hospital on December 27 or 28, and have another cesarean section. On December 18 at 4:20 a. m. she called because of pain in her abdomen. Thirty

minutes later she called a neighboring physician who gave her morphia grains 1/6. She was not in shock and her physician did not think the uterus was ruptured. She traveled approximately thirteen miles to the hospital where she was admitted at 7:30 a. m. She walked to her room. Pulse was 70 on admission, temperature was normal; she had pain in lower abdomen which was not very tender on palpation. X-ray examination revealed a fetus high in the pelvis with a soft tissue tumor filling the pelvis separate from the fetus. Diagnosis was ruptured uterus. Operation: The abdominal cavity contained blood clots. The baby, stillborn, was lying to the left in the abdominal cavity and in the left iliac fossa, as was also the placenta. There was a complete tear through the lower two-thirds of the old uterine scar. The uterus had contracted to about the size of a three months' pregnancy. Results: Highest temperature was 100 on the second day; however, following a blood transfusion on the fifth day she had a chill and temperature was 102.4. Patient left the hospital on the twelfth day.

GROUP II

Rupture of uteri due to pituitrin:

Case 4: White female, age 29. We were unable to get the parity in this case but we know that she had had several normal spontaneous deliveries. At this confinement she had been in labor since midnight. At 7:00 a. m. she was fully dilated and was given one-half c.c. of pituitrin. Labor pains ceased and patient went into shock. She was admitted to the hospital around 8:45 a. m. in shock and we were unable to obtain either blood pressure or pulse. She expired about thirty minutes after admission. The abdomen was opened and found to be filled with blood, a dead fetus and the placenta. The uterus was torn on the anterior wall from the fundus down to and including the cervix except for the breadth of about two fingers of the cervix.

Case 5: White female, age 42, gravida 13, para 10. Labor began around 2:00 a. m. Pains were not strong and her physician gave her four "shots" to hasten labor. Two hours later she had a "sinking spell" and loss of consciousness. Her physician then applied forceps without results. She was admitted to the hospital in shock seven hours after the onset of labor. Blood pressure 86/50; pulse 130. Under local anesthesia the abdomen was opened and found to be filled with blood. The stillborn fetus and the placenta were found free in the abdomen. There was a tear on the left side of the uterus extending from the cornu through the broad ligament into the left vaginal vault passing completely through the cervix. Subtotal hysterectomy was performed. As the patient was not doing so well the abdominal wall was closed with through and through stay sutures. She was given a transfusion of 1000 c.c. of blood immediately following operation. Her blood pressure was 160/110 the following day. She made an uneventful recovery, the highest temperature being 100.4 on the fourth day.

Case 6: White female, age 42, gravida 12, para 8. Diagnosis: Dead fetus. She was given castor oil and quinine at night. Around 10:00 p. m. labor pains began. During the night she was given at odd times two or three minims to one-half c.c. of pituitrin. At 7:00 a. m. she became sick, pains stopped. She began to perspire and chill and went into shock. I was called at 8:00 a. m. and from the history, made a diagnosis of ruptured uterus. She was brought to the hospital, a distance of some 70 to 80 miles. Patient was not in shock, pulse good and strong. Abdomen very tender but no severe pain. X-ray diagnosis: Fetus high in the abdomen, soft tissue and fluid in lower abdomen. Operation: A stillborn, macerated fetus (had been dead sometime) placenta and membranes were delivered. There were blood clots and a tear on the posterior surface of the uterus about four inches long. Subtotal hysterectomy was performed. She made an uneventful recovery, her highest temperature being 101 on the second day.

COMMENT

Rupture of the uterus may and frequently does occur without characteristic signs and symptoms. Usually a sudden, tearing pain, followed by cessation of uterine contractions, recession of the presenting part, and softening and tenderness of the abdomen are pathognomonic. The blood pressure drops and the patient presents a picture of shock. The symptom, external bleeding, is not constant and is not of diagnostic importance. Any evidence of shock during or immediately following labor should call for the serious consideration of rupture of the uterus as a possible cause. This is particularly true if any operative procedure has been attempted, or if pituitary solution or ergot were given prior to delivery.

In each instance the rupture of the uterus occurred at the site of the previous scar, and one was not a complete rupture. DeLee states that a previous cesarean may necessitate a subsequent operation, (a) when the reason for the first one still exists, (b) if infection occurred after first section, (c) when previous section is known to have been done imperfectly, (d) when a hernia in the scar or other condition makes it advisable to reopen the abdomen. It seems to me that women with a thin-walled uterus should have another section. If there is any overdistention of the uterus in subsequent pregnancies it is advisable to do a cesarean section. It was surprising to me in a recent case to note the thinness of the old scar, and this case had her second section three weeks before time.

McNeil in reporting a series of rupture uteri states that a woman who had a cesarean in the first delivery, had six spontaneous deliveries and in the seventh pregnancy had a ruptured uterus.

Dr. Eastman of Johns Hopkins Hospital recently told me of one of their cases who had a section with the first baby, then two normal spontaneous deliveries and a ruptured uterus with the fourth delivery.

Pituitrin is said to be safe if there is no disproportion between the fetal head and the maternal parts, the cervix fully dilated and a normal presentation and position. In spite of these rules many cases of ruptured uteri have been reported. Titus states that pituitary extract during labor is now looked upon as unjustifiable and dangerous although it is unfortunately true that it is still employed by some as a means of hastening labor.

Thymophysin, supposed to be a combination of pituitary and thymus extract, is used extensively. It is nothing but a weak pituitary solution and should be used with caution. Why not use pituitrin after the uterus has ruptured, hoping the uterus will contract and stop the hemorrhage?

TREATMENT

This is the age of preventive medicine and preventive treatment is of utmost importance. The majority of instances of uterine rupture are avoidable.

Shock must be treated first with blood, glucose and saline. In Group I we sutured the old scar and of the two living in Group II a rapid subtotal hysterectomy was performed and the results of Group II were decidedly better than Group I.

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REMOVAL OF SPLEEN

Blood transfusions and snake venom are temporarily helpful, and the removal of the spleen controls most cases of chronic thrombopenic purpura (tendency to easy bleeding due to the decrease in number of a certain type of blood cell), Nathan Rosenthal, M. D., New York, states in *The Journal of the American Medical Association* for January 14.

There are many causes of purpura, some of which are measles, scarlet fever, chickenpox, infections of the respiratory tract and drug idiosyncrasy. However, in most cases the causative factor cannot be determined.

THE PRELIMINARY CARE OF THE TRAUMATIC WOUND

By BENJ. I. GOLDEN, M. D.
Elkins, West Virginia

With the increase of high speed transportation the general practitioner is often faced with the surgical problems which a few years ago were considered of sufficient magnitude to be referred to the surgeon and hospital. While even at present most of these wounds should be referred, the problem of first aid becomes a major subject.

Much has been written on the immediate care of the fracture, but little has been said about the traumatic wound. Such wounds require just as adequate care as the fracture, and since simple wounds comprise the greater percentage of all industrial and traumatic disabilities, more emphasis must be given to their care.

Statistics from various compensation departments and insurance companies reflect a sad picture of the time lost from what appeared only to be a simple wound, with a resultant permanent disability. True, many of these cases are seen after inadequate home care has permitted infection to gain a serious advance into the involved parts.

A few years ago the words "blood poisoning" held a mortal fear over the public. But with the advent of the variegated colored antiseptics, the radio announcer's persuasive voice and the indifference of the physician, or his application of the same rainbow solutions, the public is paying the price in loss of time and disability, and industry in millions of dollars.

Nearly every drug company now places on the market one or more antiseptic solutions, whose strength too often depends on its color, ability to stain, or ease of application. Unfortunately there are many in the profession who still rely upon the phenol coefficient as the criterion of practical value.

By listening to the detail man we have become lax and are neglecting basic surgical principles. We believe it is time for the pendulum to start swinging back; to return to some of the procedures which followed the great scientific discoveries of Pasteur and Lister.

THE AUTHOR

Doctor Golden, Superintendent of the Golden Clinic, Davis Memorial Hospital at Elkins, graduate Temple University, 1921; member of American Society of Regional Anesthesia; American College of Surgeons; Radiological Society of North America; he is the son of the late Doctor W. W. Golden of Elkins.

With our present knowledge of physiology, biochemistry, and the limitations of chemistry, there evolves a definite procedure for the care of such wounds. First, it must be assumed that no wound is clean. We would even include wounds produced under the most aseptic conditions of the operating room. But here one knife is used to cut the skin, and then a second is applied for deeper structures. The trauma to the edges of the skin wound causes sufficient exudate to permit the cleansing of the wound as gauze is passed back and forth over it, hence the low percentage of infected surgical wounds. The instrument producing the accidental wound not only penetrates the dirty skin, but likewise goes to the depth of the wound. This is not new knowledge, but apparently is too often forgotten. Therefore, the statement can be made that all traumatic wounds are infected throughout.

In the treatment of such a wound the first principle is to combat this infection, and to reduce to a minimum any residual infection. How can this be done? The wound should be opened widely enough to permit thorough cleansing. No better cleansing solution can be obtained than tincture of green soap and

boiled or sterile water. The wound should be thoroughly scrubbed. The amount of trauma produced by such scrubbing may be harmful, but we have never seen it. On the contrary, our greatest regret has been too little scrubbing. Because such a procedure is painful, the patient should be anesthetized when the wound is of any size. Nerve blocking is satisfactory, but infiltration anesthesia should never be attempted, since it means the infiltration of dirty, infected and traumatized tissue, which is only adding insult to injury.

Plate 1—On admission. Shotgun wound of the foot. Four hours duration.

Plate 2—Complete debridement following free use of soap and water with scrubbing. This procedure was repeated after the debridement.

Following the massive scrubbing the wound should be freely flushed with water. The part is now shaved for a considerable distance from the site of the injury, and again cleansed with soap and water. All dead or severely contused tissue should now be removed. If bleeding is severe, apply a tourniquet.

Let us now pause a moment and review the procedure. We have removed all dirt and blood clots by scrubbing with soap and water. The solution itself is a most effective antiseptic in vivo. Also, by doing this we have stimulated the tissues to violent reaction. This reaction consists of a reversal of lymph flow, so that the tissues have poured out through the infected area a most powerful antiseptic, and mechanically washed the wound from within, out. This procedure is ideal. It is this very protective mechanism that reduces the efficiency of all topical antiseptics. No matter how perfect they may be, there is no opportunity for the chemical to penetrate the wound because of nature's attempt to wash out that wound from within. Should the preparation be of such nature as to penetrate, it must of necessity inhibit the normal tissue action which will be more harmful than the advantages gained.

In our emergency room we have repeatedly demonstrated that the wound is now ready for repair without any additional chemical protection. The repair must be undertaken with a great deal of judgment. One must clearly visualize the tissue involved; the vital structures injured; the functional duties of the part, and the resultant disability. The disability of a contracting scar is too often neglected. Small bleeding vessels should not be ligated. Ligatures are foreign substances placed in an infected field. Pressure will control small vessels, and this is best applied by the use of the rubber bath sponge on the part when the dressing is applied.

This sponge places pressure where it is needed without the use of constricting bandages. Since repair involves so much it is sometimes better to delay plastic procedures for twenty-four hours to assure ourselves the wound is properly prepared. A delayed repair will frequently save the embarrassment of having to open a nice piece of plastic surgery because of latent infection.

Plate 3—The application of A. L. E. paste preparatory for delayed plastic surgery. Pressure sponge dressing to be applied.

Plate 4—Twenty-four hours later. Pressure applied with rubber bath sponge. Wound clean. No temperature, cellulitis, or any local evidence of infection. The skin is being approximated with a few silk worm gut sutures. The sponge pressure maintained.

If the wound is left freely open early granulation tissue may interfere with a nice repair, yet temporary closure with pressure may permit bacterial growth. The ideal way would be to assist the natural processes by im-

proving reverse lymph flow and at the same time inhibiting or destroying bacterial growth in the cavity of the wound. Indeed this is the requisite of the ideal antiseptic for the treatment of the infected wound. Herein is described a preparation of anhydrous lanolin and azochloramid we have been using for the past three years with good results.* We do not offer it as an ideal, nor are we so satisfied with its efficiency that the preliminary care may be neglected. Anhydrous lanolin, as the term implies is hygroscopic. This, then, would assist in the exudation of lymph. Since it is a semisolid, melting at or slightly below body temperature, its action will be prolonged. However, in order to insure delayed action we add a small amount of spermaceti. This raises the melting point. To this is added azochloramid, a staple chemical compound slowly liberating free chlorine.

An emulsion is made of the above by slightly heating the lanolin to the melting point only, and adding the azochloramid. This is emulsified by a hand or electric egg

Plate 5.—Fourteen days after injury. Primary union. No systemic or local reaction. Follow-up shows patient with an excellent functional result and very little limp.

beater. The spermaceti is melted separately because of its high melting point, and added as the mixture is being beaten. We have called this preparation the A.L.E. paste (azochloramid-lanolin-emulsion). As lanolin is melted by the body temperature the azochloramid is liberated, which in turn frees the active chlorine. This carries out our second requisite of a good antiseptic. That it shall have the power to inhibit or destroy bacterial growth in the free space.

We use the A.L.E. paste with excellent results in large open wounds, or abrasions where we feel repair can be carried out early; in wounds where no repair will be needed, but where we have been able to cleanse thoroughly with soap and water; in wounds that must remain open and be allowed to granulate, or where there has been a massive destruction of soft tissue. Rarely has it proved to be an irritant. (The author has used it in compound fractures and osteomyelitis.)

TETANUS ANTITOXIN

As to the method of repair, choice of suturing material, etc., we feel these are matters of individual election. The only addition to the subject under discussion is the use of tetanus antitoxin. This should always be used when there is any question of tetanus being present in the wound.

Concerning the combined tetanus and perfringens bacillus serum, we feel there is not enough evidence to warrant its routine use, and the feeling of security that the gas bacillus serum is supposed to add may not prove warranted.

In this communication an effort has been made to stimulate more serious care of the so-called "minor" wound; to emphasize the seriousness of improper care; to encourage the use of soap and water as an efficient method of cleansing, and more rational than the superficial application of "rainbow" antiseptics; the value of delayed repair, and the introduction of the A.L.E. paste as an efficient biochemically acting tissue stimulant and bactericide.

Department of Surgery; Golden Clinic.

*A. L. E. Formula:

Anhydrous lanoline	16 oz.
Azochloramid (1:125 in triaceten)	1 oz.
Spermaceti	1 dram

Emulsify; do not heat lanoline beyond melting point.

A STUDY OF THE TREATMENT OF FRACTURES OF THE SPINE OPERATIVE AND NONOPERATIVE *

By H. A. SWART, M. D., F. A. C. S.
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THIS study includes 68 cases of compression fractures of the cervical, dorsal and lumbar vertebra, some of which were associated with fractures of the laminæ, pedicles and articular facets. Fracture-dislocation of the various parts making up the spinal column are also included, but simple fractures of the spinous and transverse processes are omitted. All of these cases were treated conservatively at first, but in seven of the sixty-eight cases it was necessary to perform a bone graft fusion operation.

Prior to 1929 it was customary to treat compression fractures of the spine by recumbency on a Bradford frame with or without traction on the head and legs. No attempt was made to restore correct alignment to the compressed vertebra. In 1929 Arthur G. Davis[1] reported on a series of 29 cases of compression fracture of the bodies of vertebras in which restoration of alignment was accomplished by hyperextension of the spine. He did this by pulling upward on the legs of the patient until full hyperextension of the spine resulted and then applied anterior and posterior plaster shells. To turn the patients in bed he utilized half of a life preserver from which the cork had been removed. This reduction was accomplished almost immediately after the accident. He stressed the importance of the strength of the anterior common ligament, the fulcrum of the posterior spinal joints, the firm attachment of the intervertebral discs, and the density and resistance of the lateral masses. He kept his patients in bed seven weeks, then fitted them with Taylor back braces which they wore three to six weeks. Thirteen patients returned to work before the expiration of four months from the time of accident, the average period of disability being 14 weeks.

THE AUTHOR

Doctor Swart, graduate University of Toronto; postgraduate University of Minnesota; Fellowship in Orthopedic Surgery, Mayo Foundation, 1928-1934; member American Board of Orthopedic Surgery, Clinical Orthopedic Society, American Academy of Orthopedic Surgeons, and American College of Surgeons.

In 1934 R. Watson Jones[2] of Liverpool, reported on a series of 80 cases of fracture and fracture-dislocation, in which he produced hyperextension by suspending the patients between two tables with the body sagging between them. The table holding the upper part of the body was slightly higher than the table supporting the hips and legs. This was done without anesthesia and when the maximum degree of hyperextension had been reached a plaster jacket was applied from the upper chest to the pelvis. He allowed his patients to get out of bed within one week and they carried out exercises soon after to strengthen the spinal muscles. He kept the plaster jackets on three months in slight wedge compressions; four months when the compression was more severe, and six months when the vertebral body was comminuted. He stated that the almost immediate ambulation minimized the risk of lung complications and functional disorders. The only contraindication to hyperextension treatment in his opinion was in the rare case of comminuted hyperextension fracture of the vertebral body.

Dunlap[3] was one of the pioneers in the use of hyperextension treatment. His method is to use acutely bent Goldthwaite irons assisted

*Read before the Section on Surgery, West Virginia State Medical Association, White Sulphur Springs, July 11, 1938.

by a wide sling attached to a pulley around the operator's shoulders. The reduction is accomplished under general anesthesia of gas and avertin and a lateral x-ray film is made to determine whether or not the correct degree of hyperextension has been obtained. When this end is reached a plaster cast is applied from neck to pelvis. He leaves his patients in bed from 14 to 16 weeks. At the end of that time full activity may be allowed or a Taylor back brace applied.

In 1935 Rogers[4] reported the results of his method of treatment of 31 cases of fracture of the spine. He produced hyperextension by the use of a very flexible Bradford frame. Fourteen patients were allowed to be up wearing casts and two of them partially lost correction of their fractures. Rogers concluded that part of the correction was lost in 84 per cent of his cases through the ultimate gradual narrowing of the injured intervertebral disc. Sixty-five per cent of his cases returned to preinjury activities in eight and one-third months, as an average, and remained free from symptoms.

STALLARD'S RESULTS

In 1934 Stallard[5] reported the results of treatment of 301 cases of fracture of the spine. This is the largest series that I have been able to find in the literature. Stallard placed his patients on a hyperextension frame for two days following which a cast was applied with the patient suspended between two tables. The patients were allowed up as soon as their casts were dry and were urged to carry out exercises to strengthen their muscles. The cast was worn three months, after which time a Taylor brace was applied. His average period of disability was 96 weeks as against 192.4 for the state as a whole.

The above statements apply to the treatment of compression fractures of the dorsal and lumbar vertebras. The case of fractures and fracture-dislocations of the cervical spine presents another problem. Simple fracture of a cervical vertebra may be treated by means of traction with a head halter or application of a so-called Calot jacket. Dislocations of the cervical spine have been treated by traction with the halter, forcible manipulation under anesthesia, etc. A much more effective method of head traction was introduced by Crutchfield[6] and Coleman. Small ice tongs are inserted through the outer table of the skull under local anesthesia and held tightly by means of a screw. This allows the patient to turn from side to side and is much more comfortable than the old halter. Likewise fracture-dislocations of the lumbar spine must be treated by traction either by adhesive tape or skeletal traction.

SPECIAL TREATMENT NEEDED

Fractures causing damage to the spinal cord demand special treatment. I have never seen a patient benefited by laminectomy, and do not advocate this procedure. Unless it is apparent that hyperextension will produce further cord damage, these patients should be treated by casts in hyperextension. The problem of the cord bladder has almost been solved in recent years by the use of tidal drainage as advocated by Munro.[7] Care must be taken to guard against pressure ulcers.

Our method of treatment of compression fractures of the dorsal and lumbar spine has been to produce hyperextension by means of the Goldthwaite frame or the Jones method of suspension between two tables. This has been done without anesthesia, except in individuals too nervous to bear the slight pain accompanying the procedure. When the fracture is in the lower lumbar area it is felt that a more secure fixation of the pelvis must be obtained than is afforded by the usual cast extending from the upper chest to pelvis. In these cases the cast is extended down to the knee on one side. A patient wearing such a cast is able to walk, but cannot sit with any degree of comfort. Recently in two cases of compression fractures with marked narrowing, hyperextension casts were applied from upper chest to knee, with the patient suspended between two tables under ether anesthesia. This afforded a greater degree of hyperextension than when no anesthetic was used but carrying on the anesthesia was difficult.

In the past few months we have used a new adjustable hyperextension frame, with which by the turning of a handle, the desired degree of hyperextension may be obtained.

All patients having no cord symptoms are allowed out of bed within three to five days after application of the cast. Most of them go home within one week. The cast is left on three months and is followed by the use of a Taylor back brace. Depending upon the severity of the fracture the brace is left off for periods of time each day, and exercises are carried out. Finally in three to four months the brace is discarded.

Of 68 patients, 58 or 85 per cent were males and 10 or 15 per cent were females. Sixty-two or 91 per cent were white and nine per cent were colored. The average age was 35.5 years. The youngest patient was 16 and the oldest 69.

Occupation		
Miners	51	75%
Housewives	6	8.6%
Laborers	4	5.8%
Students	2	3%
Miscellaneous	5	7.6%

Mode of Injury		
Slate fall	40	58.8%
Other mine accidents	7	10.3%
Falls of other kinds	7	10.3%
Automobile accidents	9	13.2%
Miscellaneous	5	7.4%

All cases showed tenderness over the point of injury and pain on motions of the spine. In one case only was a distinct kyphos noted, and mention was made of swelling in one instance.

There were cord changes in seven or 10.3 per cent. There was complete paraplegia in three or 4.4 per cent and partial paralysis in four or 6.1 per cent.

The x-ray changes can be tabulated as follows:

I. COMPRESSION FRACTURES

Cervical Spine			Dorsal Spine		
	Number	%		Number	%
1	1	1.4	1	0	0
2	1	1.4	2	0	0
3	0	0	3	0	0
4	0	0	4	1	1.4
5	0	0	5	3	4.4
6	1	1.4	6	2	2.9
7	0	0	7	1	1.4
			8	5	7.4
			9	4	5.8
			10	2	2.9
			11	5	7.4
			12	12	17.6

Lumbar Spine

	Number	%
1	17	25
2	10	14.7
3	12	17.6
4	9	13.2
5	6	8.6

II. FRACTURES OF PEDICLES

C	VI	1	1.4%
C	VII	1	1.4%
D	IV	1	1.4%
D	V	1	1.4%
D	XII	3	4.4%
L	I	4	5.8%
L	II	1	1.4%
L	III	1	1.4%

III. ARTICULAR FACETS

C	V	1	1.4%	L	I	1	1.4%	L	V	2	2.9%
D	XI	1	1.4%	L	II	1	1.4%				
D	XII	2	2.9%	L	III	1	1.4%				

IV. FRACTURE-DISLOCATIONS

(a) Forward:

C I on C II	1	1.4%
C II on C III	1	1.4%
C V on C VI	1	1.4%
C VI on C VII	1	1.4%
D IV on D V	1	1.4%
L III on L IV	1	1.4%
L V on S	1	1.4%

(b) Backward:

L I with posterior dislocation	1.4%

V. FRACTURE OF NEURAL ARCH

Between L V and sacrum	1	1.4%

VI. FRACTURE-DISLOCATION LATERALLY

L III on IV	1	1.4%
L II on III	1	1.4%

VII. SUBLUXATION OF ARTICULAR FACETS WITHOUT FRACTURE

L III on L IV	1	1.4%

The treatment carried out in hospital can be summarized as follows:

Without Anesthesia

	Suspended between tables	Goldthwaite frame	Adjustable frame
Hyperextension cast to pelvis	12 or 17.6%	21 or 30.9%	9 or 13.2%
Hyperextension cast to knee	3 or 4.4%	10 or 14.7%	

With General Anesthesia

With adjustable frame	3	4.4%
With Goldthwaite frame	1	1.4%
Suspended between tables	2	2.9%
Calot jackets for fractures of cervical spine	3	4.4%
Crutchfield traction used	2	2.9%
Taylor brace only	1	1.4%
Bradford frame only	1	1.4%

As previously stated patients on whom short casts were applied were allowed up early. Their average stay in hospital was 8.3 days. Those wearing casts from upper chest to knee found ambulation more difficult and stayed in hospital 58.3 days. Several patients

suffered from other conditions, such as, fractures of other bones, severe lacerations and blindness. Their stay in the hospital averaged 63 days. One patient wearing a cast for fracture-dislocation of the cervical spine stayed in hospital 27 days. Those patients suffering spinal cord injury were treated in hospital for long periods averaging 8.6 months.

After leaving hospital 54.4 per cent of the patients wore their casts three months. The average time in plaster was 3.15 months. Taylor back braces were fitted to 40 patients who wore them for an average of 3.8 months. After the brace had been worn from four to six weeks the patient was advised to remove it one hour per day, and exercise the spinal muscles 10 minutes. Two weeks later, he was advised to leave the brace off two hours per day, exercising 20 minutes, and finally the brace was left off three hours per day with 30 minutes exercise. After two to four weeks of this, the brace was left off entirely, and the patient advised to do as much light work as possible in order to strengthen his back.

In 23 cases or 33.8 per cent in which the date of return to work is known, the average time lost from work was 8.5 months. In five cases or 7.5 per cent, the patients returned to light work at varying times, the average being eight months. No further data is available regarding their return to their regular occupations. In four, or 5.2 per cent of cases, the men are still doing light work at varying times which average 17 months. Two patients or 2.9 per cent could not be followed. One or 1.4 per cent has been given a permanent total disability rating because of blindness suffered in the same accident. One man has not returned to work after two years and has been classed as a malingerer. One has been working over six months but still has back pain. Fifteen or 22 per cent are still under observation.

There were five deaths in the series. Two patients with fracture-dislocations of the cervical spine and complete severance of the cord died in three days and 34 days respectively. One patient with compression fracture of L IV died after 18 days of pneumonia. The patient with severe fracture-dislocation of L I and complete paraplegia died in ten and one-fourth months of urinary tract sepsis and extensive pressure ulcers. A second man with a compression fracture and dislocation of D IV on D V, accompanied by complete paraplegia died in 15 months of urinary tract sepsis.

COMMENT

It is believed that reduction of the fracture within 24 hours, followed by the application in hyperextension of either a short cast in uncomplicated cases or a cast to the knee in the severe cases is the method of choice. We have had very little trouble with abdominal pain, vomiting or ileus. At one time an attempt was made to place the patients on hyperextension frames for the first 24 hours but this caused much pain and the patients rarely stayed in the correct position. So, this method was abandoned, and now these patients are merely placed on a flat bed with boards between mattress and springs. Getting the patients up to walk early, according to the teaching of Bohler,[8] is an important point in this method of treatment. Cost of hospital treatment is reduced, the patient's morale is improved, and muscle tone and bony healing are promoted. Early ambulation is not advisable in badly comminuted fractures as loss of correction may result from weight bearing.

We have never been able to duplicate the excellent results of Davis[1] who reported an average disability period of 14 weeks in his patients. Of course, the majority of the patients in this series were compensation cases and it is well known that many of these men are reluctant to return to work.

RESULTS FROM THE SERIES OF OPERATIVE CASES

In seven cases an Albee bone graft operation was performed. These patients were all treated conservatively by casts and braces for periods ranging from nine months to twenty-two months, averaging 15.8 months.

Two were severe fracture-dislocations of the midlumbar spine without cord symptoms

but with persistent pain. One man suffered compression fractures of L I and V and another of L I, III and IV. The usual methods of treatment did not afford them relief. One man had a severe "V" type compression fracture of the XII D, another an unreduced fracture-dislocation of the C VI on C VII. The last man suffered a traumatic spondylolisthesis L V on the sacrum. The reason for operation in each instance was persistent, unrelieved pain.

The procedure was the same in each case. A large tibial bone graft, curved if necessary, was placed along the laminæ and spinous processes after they had been roughened up. The graft was made large enough to extend two vertebras above and two below the lesion. The spinous processes were cut into small pieces and placed along the graft.

These patients were kept recumbent on a hard bed for six weeks. The first four had no support, but the last two were treated with plaster casts which had been previously prepared, bivalved for the operation, and reapplied following operation. The cast made it easier to move the patient, and will be used in all future cases. Following the six weeks in hospital the patients left wearing Taylor back braces, except in the case of the fracture-dislocation of the cervical spine, where a cervical brace was applied.

The results have not been encouraging. In both cases of lateral dislocation of the lumbar vertebra, pain persists following operation—in one case 26 months and the other 18 months postoperatively. This is in direct contrast to the case reported by Gordin[9] in which a severe fracture-dislocation was operated upon, but the dislocation could not be reduced. However, the patient made a good recovery and two years following the accident was advised that he could do any kind of work. Seven years after injury in this case, the man does heavy work, moving 500 pound bales of cotton without trouble.

The patient with the severe crushing fracture of the D XII was relieved of his severe pain, but was unable to do heavy work 21 months following operation.

The man who had suffered fractures of L I, III, IV reported himself as being ready to return to work 18 months postoperatively, and two years and five months following injury. He probably would have recovered under conservative treatment.

The patient with the unreduced fracture-dislocation C VI on C VII continued to complain of the same symptoms after operation that he had before, *viz.*, numbness and pain down the arms. As neurological examination was negative it is likely that he is malingering and was doing the same thing from the beginning.

The patient who was operated upon for spondylolisthesis L V on sacrum has had a most interesting subsequent history. He was advised to do light work nine months postoperatively at the urging of his employer. However, as he was carrying a 75 pound box one day, his foot slipped, he felt something give way in his back and had severe pain. The next day an x-ray showed a compression fracture of the body of L III which previously had been normal. This was just above the grafted area and the graft was intact. He is still being treated for this second fracture.

The fifth man is still under treatment. He is the only one of the series to develop infection and this was in the leg wound only, the back wound remaining perfectly clean.

CONCLUSION

1. A series of 68 fractures of the spine, excluding simple fractures of the spinous and transverse processes, is presented.

2. Reduction of the fracture after 24 hours with the application of a short body cast in average cases and a cast to the knee in severely comminuted cases is recommended.

3. Early ambulation is believed to improve muscle tone and accelerate the healing of the fracture in the case of a simple fracture.

4. Bone graft operations for fractures of the spine are advised only in cases in which all conservative measures have failed to relieve severe persistent pain.

DISCUSSION

Dr. E. B. Henson, Charleston: The first thing that impressed me in fracture of the spine is the history of the type of injury. It has been my observation that in slate fall injuries, the process of the squeezing and jack-knifing is very slow, sometimes taking as long as three or four minutes, whereas in an automobile it is over in a second and it is usually by rebound—there is a sudden jack-knifing and then a sudden hyperextension. These two injuries of compression fracture of the spine are entirely different and the treatment naturally should be somewhat different.

In the slate fall, of which we see more than any other type of injury, the most important thing is to get the patients on their stomachs as quickly as possible, if it is in the lumbosacral region. I like to sling them between two tables, or to use some such method; I like to give them a hypodermic of morphine, and I like for them gradually to reduce the flexion into a hyperextension. If there is a kyphos present, we should go very cautiously and let the patients lie quietly for several hours, if necessary, and gradually apply sandbags until they get a moderate hyperextension.

A word of caution is in order here. Many times we try to get patients into hyperextension too rapidly. I have seen some disastrous results from overzealous efforts along that line. I am satisfied in the first twelve or twenty-four hours to get a moderate degree of hyperextension and later on to proceed to get a greater percentage.

Another point that occurs to me is injury to the soft parts and the patient's complaint of pain at the time. I think if we carefully examine our patient we will find quite a bit of injury to the soft parts and that the fixation in a temporary plaster mold or, if necessary, putting the patient on pillows until the soft parts have a chance to heal, will help a great deal.

I believe we all make a mistake by telling the patient where the fracture is. We should avoid, if possible, telling them they have a first lumbar or twelfth dorsal fracture, because they will come back and tell you very promptly which vertebra is fractured. Just recently I showed Dr. Swart a case in which there was fracture of the sixth dorsal, yet the man complained of pain around the tenth; not knowing the difference, he thought that was the site of the pain, seven months after injury. Personally I am not anxious to get my patients up and walking so quickly as Dr. Swart. I feel that we all live in a rather fast age and a few days lying in bed will not hurt a good many of us, and it gives them a little bit longer time to convalesce. In patients who do not look forward to compensation or insurance we get beautiful results. I think they tell us the truth.

A fracture of the spine is a serious injury, and those who lead a more or less sedentary life are correct when they say they have pains one, two or three years afterwards in certain activities that they indulge in; they tire very easily. If that is true, then I think these men doing hard manual labor probably should have a little more sympathetic attitude shown them, although no doubt they exaggerate their symptoms very much.

Dr. Francis A. Scott, Huntington: Dr. Swart is to be complimented upon his presentation of sixty-eight cases which he has catalogued nicely.

In our treatment of compression fractures and fractures of the vertebra our methods have changed during the past few years. We started out with the Bradford frame treatment and used, after that, the Goldthwait frame and Hammers' method and the two-table method, and now we are using Davis' suspension method in which the patient is hyperextended by the bands around the ankles and is suspended by means of pulleys. This allows the patient to be given an anesthesia much more easily than the method between two tables, the difficulty of which Dr. Swart mentioned. The principle of reduction of the crushed vertebra by that method is that the anterior intervertebral ligament acts as the reducing mechanism and by its pull and traction on that ligament it pulls the fragments of the vertebra back into place.

The method of treatment in any fracture of the vertebra depends on many things. The first is the age of the patient. We see compression fractures in elderly people around sixty to eighty who get a compression fracture by sitting down suddenly, or something like that. Of course, in people with marked osteoporosis of the spine I do not believe one is justified in subjecting them to manipulation or long suspension in a cast.

We pay very marked attention to whether there has been any damage to the articular facets or the laminæ in these cases. We take special x-rays to rule out any possible injury, because we feel the articular facets and the laminæ are the fulcrum through which reduction is accomplished by this hyperextension method. If there has been any dam-

age to the articular facets or the laminæ there is great danger in placing the patient in marked hyperextension and forcing one of these fragments into the spinal canal and causing cord damage where there was none present before.

During the past five years we have had three patients with fracture dislocation in which the articular facets of the superior vertebra has locked anteriorly on the articular facets of the vertebra below. These have required open reductions of these dislocated vertebras. The exposures were made and by means of the kidney rest the spine was increasingly flexed until the articular facets were unlocked and then the patient was placed back up in hyperextension.

One interesting thing which we found in connection with those three cases was that at the tenth and fourteenth day they all had a tendency to go into acute dilatation of the stomach. One of these died from this condition. In the other two we were on the lookout for it and it was prevented by continuous duodenal and gastric suction.

We reduce all of our fractures after very careful x-ray studies of the laminar and articular facets, under anesthesia. We do not feel that complete and satisfactory reduction and immobilization in the cast can be accomplished without it. For the type of fixation, we use a plaster cast fixation, and, as Dr. Swart said, depend upon the location of the fracture. In the lower vertebra, that is the fourth and fifth lumbar, we incorporate both legs at the knee rather than one, especially if the fifth lumbar is involved.

As to the question of early ambulatory treatment, in simple compressions we do encourage walking on the first, second and third days. Those in which there is comminution of the vertebra, so frequently seen in coal mine accidents, we do not allow to be up and walking until eight weeks. Our period of fixation or immobilization is between twelve and sixteen weeks. We have found that after early removal of the cast recompression did occur, and we have lengthened our period of fixation until now it is twelve to sixteen weeks, depending upon the severity of the compression and whether the case is comminuted or not.

We use a bivalve cast and in a few instances we use the Taylor back brace.

In those cases that are paralyzed I agree with Dr. Swart that laminectomy is usually futile. In none that we have done have the patients received any beneficial results.

If there is any chance for these cases by x-ray examination, manipulation and attempted restoration of normal alignment to the vertebra is done. If, however, by x-ray there is complete dislocation so the cord does not escape injury, we do not make any attempt at reduction of the injury and make no attempt at fixation.

Every effort is made to prevent pressure sores and urinary infection, neglecting entirely spinal cord injury. We feel that we can prevent pressure sores and trophic ulcers without a cast better than we can with one.

As to the question of spinal fusions in these types of cases, the type of fusion which we previously used was the type described by Dr. Swart. After having three of these absorbed after two years we thought we had a beautiful result and when we checked up x-rays even a year and a half or two years later it still showed a beautiful result, but the patient came back complaining of pain and we found in a check-up x-ray that our graft was entirely absorbed. Since that time we now use the multiple small grafts with particular attention to the articular facets.

I believe in these cases of persistent pain that have not been relieved otherwise, fusion is definitely indicated. We also do fusions early in cases in which there are fractures to multiple articular facets. Some cases have four or five articular facets broken, some of them into small fragments, and we believe they will cause persistent pain; fusion is done at the end of six weeks in those cases.

I do not believe that discussion of this subject would be finished without mentioning rupture of the nucleus pulposus. In our treatment of fifty to sixty compression fractures of the spine each year we have not as yet seen a rupture of the nucleus pulposus in conjunction with any of these cases.

Dr. Compton Riley, Baltimore: I am more than glad to hear Dr. Swart say that he does not think laminectomy should be done.

We all realize that cancellous bone will not recover as quickly as solid bone following fracture. The trabeculæ evidently have to be reformed before the bone regains its proper strength.

An injury, whether by indirect violence or direct violence—x-ray the entire spine anteroposteriorly and laterally, because a second fracture may otherwise be overlooked.

I was surprised to hear him say that he had a paralyzed bladder in a patient with a fracture of

the lumbar vertebra. We know that the urinary centers in the cord are up around the ninth dorsal vertebra. I have never seen a case where there was a fracture of the lumbar vertebra producing paralysis of the bladder.

In my work I follow the plan of relaxing the strongest muscle or group of muscles that acts on the fracture. The abdominal muscles, therefore, are the ones that we have to loosen to enable us to reduce a fracture of the spine, the articular processes and the arches, and that has to be done partly by traction and partly by position. I believe the sooner they are reduced and put in plaster cast extending well above and below the seat of fracture, the quicker you will get results and the safer and better it will be. I do not believe any spinal bone grafts should be done under any circumstances until the patient has been relieved of all pain and organic functional disturbances.

I do not put the patient to sleep, ever, to reduce a fracture. I used to put them in extension. The great trouble is the development of pressure or atrophic sores that occur in a few days. I always felt that I could take a patient with a broken neck or a high dorsal fracture and straighten him out, immobilize him in plaster immediately, and that would do away with a great many of these pressure sores and symptoms.

I never use a brace on fracture of the spine. I always use plaster in preference to any kind of splint. I let them get up on their feet immediately if the paralysis subsides. I do not believe the paralysis you get in the majority of cases is due to pressure of the bone against the cord, but it is usually due to a blood clot or a congestion caused by it. It is noticed in the dissecting room that the spinal cord has a very thick anastomosis of blood vessels around it which anastomose with the intercostal and other vertebral arteries, and when the body is crushed it closes those large vessels in the body and causes a daming up around the cord.

Dr. G. G. Irwin, Charleston: The subject of bladder paralysis is quite a pertinent one in this connection as the majority of deaths occur from urosepsis.

When there is any cord injury we are immediately confronted with the possibility of a bladder paralysis. Whether this is simply a transitory affair or one that is going to be permanent we cannot tell, and still we must meet this patient as an emergency case suffering from overdistended bladder.

A certain number of these cases will go on and recover urination spontaneously; other cases will not. We do not make any effort whatever to keep catheters out of these patients. We were taught long a[illegible] of course, that catheterization was fatal. It is m[illegible] lief that fatality results from not enough cath[illegible]tion. If patients are catheterized, and are catheterized often enough to be kept from getting overdistended, in event spontaneous urination is going to occur I believe little if any damage will have been done. On the other hand, if urination is not going to occur we are then faced with a new proposition. Munro has postulated that the bladder has an intrinsic mechanism of its own, that the detrusor will respond to the stretch mechanism. Early in the game the detrusor, of course, is thrown out of action, and at the same time the internal sphincter becomes spasmodic. Therefore, such a bladder is very likely to become overdistended. That bladder faces the possibility of damaging its intrinsic mechanism through two means: (1) through infection; (2) through overdistention. In event these two processes go far enough, restoration of any automatic function of the bladder becomes extremely difficult. So it is our practice, after we have catheterized these patients or a neurologist has told us there is a permanent nerve injury, to put them on tidal drainage.

This method has the advantage of keeping the patients dry and comfortable; nursing care is cut to a minimum. There has been no epididymitis, nor scrotal abscesses. In fact, we have had very few urinary complications of any kind. If the catheter is changed often enough there will be no urethritis. We have tried it at length on six or seven cases so far and in none of those cases on discharge, has there been more than 20 c.c. of residual urine. There has been no gross infection.

Failing tidal drainage, the best method to use is suprapubic cystotomy, assuming that one can make a water-tight joint. We have had some experience with the let-them-fill-up-and-overflow method and find that those patients, to begin with, will not suffer the pain incidental to the great distention necessary. Those who do stand it do not recover the complete emptying power of the bladder and therefore have retention and are subject to infection.

Dr. Justus C. Pickett, Morgantown: I do not think that Dr. Swart and Dr. Scott would leave the impression that laminectomy is never indicated

in fractures of the vertebras. We have a means at our disposal, lumbar puncture with manometric studies, which is a fairly easy thing to carry out in most patients, and I believe in paralyzed patients who show a block, laminectomy is the thing to consider. I have in mind two patients—one I followed to autopsy, who was allowed to lie in bed and die from urinary infection and pressure sores. I looked at his back and he had a small piece of bone broken out of the posterior vertebra lying against the cord anteriorly. I believe that man could have been improved a lot if laminectomy had been done early. Since then I have done two cases in the past five years, out of about fifty cases; I found pressure each time, and both patients are alive and walking today. I believe if they had not been relieved, neither of them would have gotten over the paralysis.

Dr. Howard A. Swart, closing the discussion: I wish to thank the various gentlemen for their discussion. I have been asked to give again our method of reduction of compression fracture. I believe the better of the two methods that we use is suspension between two tables. Two simple tables are used, one about a foot higher than the other; the patient is placed between them, the table coming across the chest as high as you can get it so as to have him suspended. The thighs are rested on the other table, and the patient is allowed to hyperextend his spine as far as possible in this position. Of course he has to be helped to stay on the table.

Most of our cases have been done without anesthesia. In two instances ether was given, and you do get a good deal more hyperextension in those cases. I imagine using Dr. Scott's method, anesthesia could be carried out more easily. As soon as the hyperextension is obtained, a cast is put on down to the pelvis or the knee, depending on the site of fracture.

I did not bring out the treatment of fractures of the transverse process, but all I have done is apply adhesive tape to them. They will heal up, depending on how much separation of the fragments there is, with disability for six weeks. I have never found it necessary to put a cast on any of these patients.

Regarding the importance of fractures of the articular facets, I did not stress that very much, but we pay a good deal of attention to that too. As Dr. Scott said, hyperextension may very easily produce impingement of the bone on the cord. I had a patient in whom I believe that happened, but fortunately the paralysis that he obtained immediately on the table cleared up later.

Regarding laminectomy, as I say, I have an open mind. I have seen laminectomies done, but in no case have I seen a good result.

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HEART DISEASE DEATHS

Mortality from heart disease, now unnecessarily high, could be lowered considerably through a vigorous program of public education, says J. Hamilton Crawford, M.D., Brooklyn, N. Y., in the February issue of *Hygeia, The Health Magazine.*

Advocating a campaign for prevention and care of heart disease, Dr. Crawford points out that the incidence of its four major types occurs in four fairly well defined periods of life. Thus the rheumatic type is a disease of childhood and early adult life, syphilitic heart disease appears usually from the third to fifth decades and heart disease secondary to blood pressure is characteristic of persons over 40, while heart disease due to arteriosclerosis generally occurs only after 60.

Education in syphilitic heart disease must be begun during adolescence, since its greatest incidence is in early adult life. The disease should be made rigidly reportable and a severe censure passed on any physician who fails to report a case. Once treatment is begun, failure to continue it until the physician dismisses the patient as cured should be made a punishable offense.

THE EFFECTS OF BASKETBALL ON JUNIOR HIGH SCHOOL BOYS

By A. B. BOWYER, B. S., M. D. and N. S. ANDERSON, A. B., M. S.
Buckhannon, West Virginia

THE coaches, doctors, psychologists, and many noted men in the field of physical education have openly expressed their opinions on the new ten second rule which has speeded up the game of basketball, already extremely fast. Many college coaches have written that this or that boy was "burned out" in high school or junior high school. We could quote a long list of opinions pro and con on the effects of basketball on junior high school boys, but like many other opinions, they must have some statistical evidence or they are just spoken words. Opinions expressed without statistical evidence will not help in determining definitely whether there has been any harmful effects from the new ten second rule eliminating the center jump.

We are not going to give our opinion of the new rule, but will introduce evidence to show that the game of basketball is extremely strenuous on boys in the age group of 12 to 16 years. The authors of this article have searched through all available sources and have been unable to find any recorded data on the effects of basketball on the junior high school boys. The desire to determine whether there is any harmful effect on the hearts of boys at this age, and since we have developed some definite facts, we have prolonged this study, which is now entering the fourth year.

PAST EXPERIENCES

Last year, 1937-1938, we carefully checked the blood pressure and heart rates before and after each game. We also made a preseason and postseason test. The results as tabulated at the end of the year did not furnish any surprising results. Two factors constantly enter into a preseason and postseason test. First, the boys age variable could not be held constant because they were three months older at the end of the season.

THE AUTHORS

Dr. Arkie Basil Bowyer, graduated University of Louisville, School of Medicine, 1930; U. S. Public Health Service 1930-1931; Secretary, Central West Virginia Medical Society.

Mr. Anderson, graduate of West Virginia Wesleyan College, has coached basketball at Buckhannon High School for the past nine years.

Secondly, from scientific investigations it is known that all members of a basketball team do not travel the same distance. Admitting that some error can be found in our first two studies we can still draw this conclusion which is shown with the following data. The mean or average of the preseason systolic pressure was 108 plus or minus 2.78 and the mean of the postseason pressure was 111.6 plus or minus 2.95. The true difference between the means was 3.6 which was a gain in systolic pressure. The critical ratio was .89, which indicates that the mean of the preseason and postseason test is not statistically significant. We, therefore, drew the conclusion that as far as we were able to ascertain from our studies as conducted, that basketball under the old rules did not have any harmful effects on the junior high school boys.

With our conclusions of 1936-1937 showing no harmful effects, we decided to continue the study and record the findings under the new rules.

1937-1938 RESULTS

We have discovered many interesting facts by carefully checking the results of each game. We will not list all the facts found, but only a few that we deem pertinent to this brief study. One of the most interesting comparisons is made between a hard game and an easy one.

EASY GAME

Names	Before Game Sy.	Before Game Dias.	Before Game H.R.	5 Minutes After Sy.	5 Minutes After Dias.	5 Minutes After H.R.	20 Minutes After H.R.
Reppert	130	84	96	130	82	110	96
Post	110	76	76	110	76	88	76
Anderson	126	76	76	130	90	90	78
Gower	140	82	82	130	76	114	84
Bedell	120	80	80	120	72	100	80
Myers	130	76	76	105	70	100	76

We have not recorded the names of all the boys who participated in the easy game, but only those who played in most of the games during the season. In the easy game sixteen boys played at some time or other. There was not a boy on the squad who played the whole game. The game was played rather slowly and the score was very much one-sided. The chart above on this game shows most of the blood pressure and heart rates of the boys had returned to normal when the game was over. The heart rates taken twenty minutes after the game show all the boys returned to normal but one, and it is only a fraction higher. After studying the results of the easy game, we decided to use a real hard game as a means of comparison.

HARD GAME

Names	Before Game Sy.	Before Game Dias.	Before Game H.R.	5 Minutes After Sy.	5 Minutes After Dias.	5 Minutes After H.R.	20 Minutes After H.R.
Reppert	124	80	72	124	80	140	115
Post	130	90	80	110	78	110	84
Anderson	120	80	80	130	90	168	116
Gower	140	84	96	128	76	144	128
Bedell	124	76	80	132	76	128	118
Myers	116	86	80	120	78	92	80

The game used for comparison was the second hardest game of the season. The score was close from beginning to end, and the boys just managed to win in the final seconds of the game. The tabulated results are so different from the easy game that a few remarks will be made. By observing the chart of the two games you notice that the highest blood pressure was 130 systolic and 82 diastolic, with the highest heart rate at 114 in the easy game. The results of the hard game are startling when you find the pressure of some going down, while the pressure of others is increased by exercise. Normally, most boys' blood pressure and heart rates will increase with exercise. When the blood pressure goes below normal, it indicates a period of staleness or acute fatigue. This particular point will be mentioned again after the preseason and postseason tests. The figures after the hard game will immediately make you ask this question. Why is the heart rate of Myers so low five minutes after the hard game? The explanation of Myers' low heart rate gave us a clue to one of the most important facts deduced from this study. Myers, an outstanding guard on the team, was forced out of the game at the end of the third quarter by personal foul route. He had played hard for three quarters, yet, by resting the fourth quarter of the game, he was practically normal five minutes after the game. The chart shows that he had returned to normal twenty minutes after the game. The chart further shows that Post's heart rate is also nearly normal after twenty minutes. The same reason is applicable. Post did not play the full game, but was given two quarters to rest.

We noticed throughout the season that the boys who did not play the full game would return to normal very quickly after the game. From this, we decided that a full game of basketball was too strenuous on junior high school boys. Our conclusion is substantiated by a doctor with many years of experience, Dr. S. J. Morris of the Health Unit of West Virginia University, who says, "According to the data furnished me in regard to four quarters of basketball and its effect upon heart rates and blood pressure, I would say that a full four quarter game under the new rules is too much of a strain upon youngsters' hearts." Dr. Morris further stated after looking over the heart rates after the games, "that heart rates of 150 to 168 would have a harmful effect on the circulatory system if continued for a great period of time. Several seasons of basketball with the boys playing a regular schedule without periods of rest will prove to be more harmful than beneficial."

COMPARISON OF HEART RATES

The highest heart rate recorded for the year 1937-1938 was 168. The next two highest were 166 and 162. Several boys were found in the range from 140 to 156. It was

found that the forwards of our own squad as well as visitors showed a higher heart rate than the centers or guards. The mean pulse rate of the four hardest games of our squad was found to be 146 five minutes after the game. After twenty minutes, the heart rate was still 115.

As a means of comparison we took the systolic and diastolic blood pressure and heart rates of our visitors. The mean heart rates taken of the visitors who participated furnish some figures which show the effects are very similar when the heart rates of several squads are recorded.

School	Mean H.R. 5 Min. After Game	Mean H.R. 20 Min. After Game
Buckhannon Juniors	146	114
Grafton Juniors	144	110
Central Juniors	133	116
Weston Juniors	148	122

The mean figures as recorded gave us still further proof that the high pulse rates did not occur only with our own squad, but when compared, the reactions were about the same with all teams. This is another fact which makes us come to the conclusion that the new ten second rule has speeded up the game of basketball too much for junior high school players.

CONTROLS

The preseason and postseason tests were taken under ideal conditions without the emotional strain of a game. The results of the preseason test are very different from those of the postseason test. It might be stated that the postseason test was taken the week following the junior high school tournament, in which the boys had played four hard games in two days.

PRESEASON TEST

Names	Sy.	Dias.	H.R.	Age
Reppert	144	80	84	15
Post	120	82	72	14
Anderson	120	82	72	16
Gower	150	88	85	16
Bedell	130	80	88	16
Myers	118	76	78	15

The postseason test shows the boys' heart rates are higher while the blood pressure is lower. The high heart rates and low blood pressure indicate periods of fatigue that naturally place a strain on the circulatory system. We are unable to say with any final degree of authority, but the probabilities are, that if this type of strenuous exercise is practiced year after year during the adolescent period, it will produce a weakened circulatory system, which may develop into a handicap in later life.

POSTSEASON TEST

Names	Sy.	Dias.	H.R.	Age
Reppert	120	78	80	15
Post	115	72	74	14
Anderson	110	76	78	16
Gower	120	80	80	16
Bedell	104	74	96	16
Myers	108	74	92	16

Our conclusion from the postseason test is substantiated by an authority on the subject who makes the following statement on low blood pressure after exercise. "After prolonged and severe exertion, the blood pressure falls to a point below the normal as determined before the exertion. The fall denotes extreme fatigue, the failure to rise probably indicates muscular heart weakness or, at least temporary dilatation."* If boys continue to play after extreme fatigue has set in, then it will prove very harmful to the circulatory system, if continued for any period of time.

In conclusion we are of the opinion that basketball as played with the present rules, is too strenuous for junior high school boys, unless several boys participate in one game. We plan to check the blood pressure and heart rates for 1938-1939, using two full teams, and giving each team at least one quarter of the four to rest. These results will be tabulated and reported next year.

*Dr. Francis Ashley Faught: Blood Pressure, Chapter VII.

GERMAN PROFESSOR RETIRES

Having reached the age of 65, Prof. Otfried Förster has retired from the chair of neurology and psychiatry at Breslau University, the regular Berlin correspondent of *The Journal of the American Medical Association* reports in the January 14 issue. Through his basic research in anatomy and physiology as well as in the pathology of the nervous system, Förster has gained for himself an illustrious name. Neurosurgery likewise is much in his debt. The intradural resection of the dorsal nerve roots, for abolishment of spastic paralysis and tabetic crises, is known as Förster's operation; it was done by him as early as 1909.

Tuberculosis Abstracts

Furnished Through the Courtesy of the West Virginia Tuberculosis Association

At different periods of the life span there are striking differences in the clinical manifestations, the prognosis, character of the lesions and the mortality of tuberculosis. Dr. Arnold Rice Rich discusses this problem in his John W. Bell Tuberculosis Lecture before the Hennepin County Medical Society, Minneapolis, April 4, 1938.

AGE INFLUENCES TUBERCULOSIS

Differences in the tuberculosis mortality rate at the different periods of life have been regarded by many as evidence that there are corresponding differences in native resistance at the various age periods. Simple mortality rates are, however, influenced by important factors other than age. We are interested, therefore, in knowing the number of deaths in relation to the infected portion of a given age group. Statistics regarding the incidence of infection by age groups are incomplete and woefully lacking for adult groups and for infants in the first year of life. Another difficulty is that hypersensitivity to tuberculin may fall to a low level a year or two after infection and consequently tuberculin test surveys do not always give a true picture of the amount of infection.

Despite these difficulties it is possible to make a conservative estimate of the incidence of infection for each group. The author has collected statistics from numerous sources and constructed a table showing the ratio of tuberculosis deaths to the number of infected persons by age groups. From this table we may draw the following conclusions:

1. That tuberculosis is most fatal during the first year of life.
2. That it is much less dangerous, but still markedly so during the succeeding several years.
3. That the period between five years and puberty is a strikingly "safe" period, during which the mortality from the disease decreases in spite of the fact that the incidence of infection increases.
4. That following the age of puberty there occurs a sharp increase in the death-hazard among those infected.
5. That the increase in the tuberculosis mortality-hazard continues steadily into adult life, reaching a peak in the middle twenties, after which it continues at an elevated level throughout the remainder of the life span, but with variations that depend upon sex, occupation and economic conditions.
6. That in old age there occurs a second peak of mortality-hazard.

The most dangerous age period in which to be infected is that of the first five years of life, and most particularly during the first year; the safest period is that between five years and puberty. From puberty onward the chance of dying if infected increases rapidly until it reaches a peak, the precise age period of which is inconstant in the total population and may be different for each sex at different periods of time. The mortality rate among the infected is always high in old age, but it may be lower than the first adult peak. How are these age peculiarities to be explained, and what relation, if any, do they bear to age-determined differences in native resistance?

INFANCY

Since infants cannot move about to court infection, they are ordinarily exposed either to heavy and continued infection or to none at all. Malnutrition, more frequent in infancy than later, affects resistance to tuberculosis. The native ability of the infant to resist infections in general is deficient. In tuberculosis, the rapidity with which an effective degree of acquired resistance develops following infection plays a very important rôle in determining the outcome of a primary infection.

BETWEEN ONE AND FIVE YEARS OF AGE

During the second year of life the external influences which favor a high death rate among those who become infected are still operative but to a lesser degree. After the second year of life the death rate of those who become infected falls markedly. This may be due to the fact that the ability to move freely outside the home is accompanied by the opportunity for acquiring single, slight infections which can be well resisted. Children between two and five years of age have a decidedly greater ability to form immune bodies than have infants.

BETWEEN FIVE YEARS AND PUBERTY

The tuberculosis mortality rate among those infected is markedly lower than that in any other decade. While free movement at this age leads to a great increase in primary infections, far fewer of these infections produce progressive fatal disease. In this decade, children are most protected against the vicissitudes of life—they are safeguarded in the home and in school and are spared the stress and

debilitating influences of later life. They enjoy outdoor play, and sufficient rest and sleep.

In addition there is evidence that the mechanism for developing acquired resistance ("serological maturity") becomes established. Antibody-producing power reaches its height during the period from five years to puberty.

ADOLESCENCE

The sharp rise in the tuberculosis mortality curve at the period when puberty adjustments take place, suggests that pubescence may be accompanied by a depression in resistance. While opportunities for acquiring infection are greater at this age, this factor does not account for the mortality rise; mortality increase far outstrips infection increase. Nor can the mortality increase be accounted for by the assumption that active tuberculosis at this period represents the evolution of infection acquired earlier.

The mortality rise in adolescent females is more pronounced and occurs at an earlier age than in adolescent males. The puberty alterations likewise are more profound and occur earlier in females than in males. Progressive lesions in adolescence often show characteristics indicative of a lower degree of resistance.

ADULT LIFE

Tuberculosis mortality continues to rise into adult life and ordinarily reaches its peak in the middle twenties. The effects of occupational hazards, childbearing, care of the family and the struggle for existence are now in full play. The terms "over-stress and strain" and "the run-down state" while vague and unscientific, nevertheless express very real hazards in the body's struggle to hold a tuberculous infection in check.

There are many who maintain that the previously uninfected adult is more susceptible to tuberculosis than is the child and that it is an advantage, therefore, to become infected in childhood. The author does not hold that view. After analyzing the advantages and disadvantages conferred by a primary infection, he strongly urges that all individuals should avoid spontaneous and uncontrolled infection as far as is reasonably practicable.

OLD AGE

In the final period of life, after sixty, the tuberculosis death rate rises sharply. Increased opportunities for exposure to infection can certainly not be the cause here, for the aged tend to draw away from contact with the world. One, therefore, suspects the presence of factors that depress resistance.

In the aged, tuberculosis often progresses with strikingly few symptoms, save for the cough which is often not severe. It is, therefore, frequently unsuspected even when tubercle bacilli abound in the sputum. Such cases may be the source of fatal infection for children and it is of great importance to investigate the reason for a persistent cough in an older person. The belief that tuberculosis in the aged is more benign than at other age periods is not well founded. All available evidence indicates that the aged have a lower degree of resistance than the middle-aged, though the responsible factors are not precisely known.

The author concludes: "The peculiarities of susceptibility and resistance at the various age periods, and the manner in which external factors act to alter resistance, constitute, perhaps, the most important problems in tuberculosis today, not only from a theoretical but, indeed, from a highly practical standpoint; and they deserve the most serious and intensive investigation. In this review of the general outlines of the problem, I have sought chiefly to stress the narrow limits of our present information, rather than to attempt to provide a series of comfortable, theoretical explanations for these complex and incompletely understood phenomena."

The Influence of Age-determined Factors on the Development of Tuberculosis, Arnold Rice Rich, M.D., Minnesota Medicine, Vol. 21, No. 11, Nov. 1938.

CHEMOTHERAPY AND ACUTE INFECTIONS

A possible extension of the application of chemotherapy to acute infections such as tetanus formed the subject of a paper read by Dr. R. L. Mayer at the Académie de médecine of Paris, the regular Paris correspondent of *The Journal of the American Medical Association* reports in the January 21 issue. It is comparatively easy to produce tetanus in mice by the subcutaneous injection of earth containing the bacilli. Of the two drugs which were employed in his experiments, sulfanilamide and alpha para-aminophenyl-sulfonamide, the former is four times more toxic than the latter but its activity toward all bacteria except streptococci is less marked. Of thirty control animals, only one, or 3.5 per cent, lived after the injection of earth containing tetanus bacilli, whereas of ninety-five mice which were given one of these drugs forty-one, or 43 per cent, survived. The author expressed the opinion that in the future chemotherapy may play an important part in the prevention and treatment of tetanus.

President's Page

The Annual Conference of the County Secretaries and Presidents was held in Charleston on January 6, and I certainly agree that it was one of the most important and inspiring meetings of the year. To meet and become better acquainted with the high type of county officers, and to note their interest and loyalty, gave me additional assurance of the unity of our State Association and confidence that any program we may adopt will be carried out well.

The program was well planned and covered many details. Naturally, however, at this time the chief discussion was on medical economics. The principles of hospital insurance were reviewed at length and there was a general agreement that these plans could now be worked out on a sound basis, and the medical profession could now, not only endorse them but should be cooperative and helpful in every way in solving their problems. Nonprofit organization with free choice of hospital is essential to the success of every hospitalization plan. Comprehensive talks were made regarding medical service in the department of medical assistance. It was pointed out that this service was comparatively new, the funds inadequate, the fees too low, and the scope of the work limited, but the doctors were asked to stand by, be helpful and tolerant until more adequate funds could be obtained and the scope of the work increased.

More adequate medical care and better distribution of the cost in the low income group was also discussed. Both radical and conservative views were voiced. I would again caution you on hurried decisions on this tremendous subject.

Certainly in some localities some type of list work is necessary. However, we should insist that this service be kept on the highest possible level—that the care be adequate and that the patient have a definite say, either individually or by groups, as to his choice of his doctor and hospital and as to whether his care is satisfactory. It is entirely possible that insurance companies will soon offer medical insurance paid to the patient on a cash basis, thereby helping to distribute these costs.

A report was also given on the work of the Special Committee of the A. M. A. and the Government Interdepartmental Committee, and it was hoped that they could soon get together on a program which the medical profession could accept and lend their support to its fulfillment.

At the close of the Conference three major objectives were cited for the county society:

1. An active Advisory Committee to the D. P. A. to help in the medical problems. This committee can be of tremendous assistance in the better care of the indigent by its advice, education, and cooperative spirit.

2. An active legislative committee who will contact the county, state and national legislators, get better acquainted, talk over their problems and through better understanding and confidence be in a better position to ask their support in medical matters.

3. Interest the entire membership in the problems of today. Have conferences with industry and labor, regarding the low income groups and show a cooperative spirit in working out with them, improvements over the present methods, if necessary.

I am convinced the medical profession is awakening to these problems, are reading, studying and otherwise informing themselves. Therefore, I am satisfied that with unity and understanding we will solve them in time.

Ray M. Bobbitt

President.

West Virginia Medical Journal

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THE OUTLOOK IN WASHINGTON

If we read the signs of the times aright, probably before this issue of the JOURNAL reaches you, Senator Wagner of New York will have introduced into the Senate a bill covering the main features of the projected health program. Certainly this bill will contain provisions for the extension of the Public Health Service and the Maternal and Child Welfare Services. Also it will certainly contain provisions for translating into action the hospital and diagnostic clinic plans. Furthermore, it will apparently contain provisions for the allocation of federal funds to the states which set up plans for the care of the indigent and the medically indigent. Inasmuch as Senator Wagner is apparently definitely "sold" on compulsory sickness insurance, his bill will probably include provisions for subsidies to states which enact compulsory sickness insurance laws. Also it will probably contain provisions for insurance against loss of wages during illness.

The medical profession can very readily go along with the efforts to strengthen the Public Health Service and the Maternal and Child Welfare Services. Moreover, it should support the hospital program, especially emphasizing that part of it which relates to the increasing of facilities for the proper care of tuberculous and mental cases. Inasmuch as the American Medical Association has approved the use of tax funds for medical service to the indigent and the medically indigent, we believe that this feature should have the support of the medical profession generally. However, we cannot but wonder if something of the finer elements of the physician's life will not be gone after charity practice has disappeared. It seems to the writer that some of the richest experiences of his life have been associated with the care of persons who were never able to pay him one penny. We are going along with the recommendation for government insurance against the loss of wages due to illness because it has the approval of the organized medical profession of the country. However, we personally believe that it is much better generally for insurance to be conducted by private insurance companies. We cannot help but feel that every invasion by government of private business of any kind tends to plunge America further into the morass of socialism.

We believe it to be the duty of each physician to use every effort he can to defeat governmental sickness insurance in the individual states and to defeat all attempts to subsidize such schemes within the states with federal funds. The medical profession knows the fallacies inherent in compulsory governmental insurance, and is in duty bound to inform legislators and laymen generally of its dangers to the welfare of the American populace. We therefore urge every physician in West Virginia to write his congressman and senators protesting against the inclusion of any such provision in the health statutes. Not only should each doctor make his desires known himself, but he should urge his lay friends to express their wishes to their representatives in the Congress. In the final analysis, the lay public has a much greater interest in compulsory sickness insurance than has the medical profession, because the deterioration of medical practice and the slowing up of medical progress which has invariably followed compulsory sickness insurance in other countries means much more to the recipients of medical care than to those who

furnish such service. We therefore urge upon every doctor to have as many of his patients as possible communicate with their representatives in Congress and to protest against the inclusion in the health bill of any provision for compulsory sickness insurance, state or national, and against the use of federal funds to subsidize such schemes in the individual states.

THE DRUGGISTS' CAMPAIGN

Again we commend the West Virginia Pharmaceutical Association on its campaign to restore the old art of prescription writing. Most members of the Association have received their monthly releases suggesting the use of USP preparations instead of proprietary medicines. The purpose of the campaign is to ease the pressure on the patients' pocketbook, an item of no small consideration to the medical profession in this changing economic era.

We have before us a comparative list of prices on 28 drugs, showing the cost of the drugs when ordered by their USP names and by their proprietary names. The list was taken from the *Virginia Pharmacist* of October, 1938. The total cost of the USP column is $22.28. The total cost of the proprietary column is $80.54. The difference averages $2.08 per drug. It would appear to be to the advantage of all if doctors would become more familiar with and make use of medicines by their official names. That is just what the Pharmaceutical Association is trying to accomplish in its present commendable campaign.

The first national pharmacopoeia, adopted in 1820, was the work of a physician, Dr. Lyman A. Spalding of New York. From that time until the present day, this country has had a pharmacopoeia which has been largely under the control of the medical profession and which has been accepted by the United States government as a minimum standard which a vast number of drugs are required to meet. To the medical and pharmaceutical professions, this has formed a common bond of interest which is now beginning to bear fruit.

FLOWERS TO SMELL

Dr. Oscar Bernard Biern, the genial official host of the Cabell County Medical Society, believes in giving people their flowers when they can still smell them. On the evening of February second, under his sponsorship, the Cabell County Medical Society is holding an "appreciation" dinner at the Guyan Country Club, honoring four members of the society who have achieved national and state-wide renown.

Those to be honored on this gala occasion are Dr. Walter E. Vest, recently elected president of the Southern Medical Association; Dr. James R. Bloss, American Medical Association trustee; Dr. Ray M. Bobbitt, president of the West Virginia State Medical Association, and the jovial and beloved Dr. Thomas W. Moore, Southern Medical past president.

Dr. Morris Fishbein, editor of the *Journal of the American Medical Association*, will be the speaker of the evening. The dinner will be formal and will be preceded by a social hour. The Cabell society hereby extends a warm invitation to all Association members who care to attend, with the proviso that reservations must be made in advance.

We join the Cabell County Medical Society in extending greetings, commendation and best wishes to these distinguished leaders of organized medicine. We close with the announcement that this little tribute was written and published without the knowledge of the editor, who happens to be Dr. Vest.

There is nothing to dread about cancer of the breast if one finds it in time, because it can be cured if treated early!—*Hygeia.*

General News

CONFERENCE OF SECRETARIES

In what was generally conceded to have been the most successful and best attended of such events, the annual Conference of County Society Secretaries and Presidents of the West Virginia State Medical Association was held at the Daniel Boone Hotel, Charleston, January 6.

After selecting Dr. Guy H. Michael, Belington, secretary of the Barbour-Randolph-Tucker Medical Society, as conference chairman, the delegates heard on the morning program the keynote address of Dr. Ray M. Bobbitt, Huntington, president of the West Virginia State Medical Association; a discussion of "The Principles Underlying Hospital Insurance," by Dr. R. O. Rogers, Bluefield, president of the Hospital Association of West Virginia, and an address by Dr. Walter E. Vest, Huntington, member of the American Medical Association Federal Conference Committee, on "The American Medical Association and the National Health Program."

Following the noon recess and luncheon Dr. R. J. Wilkinson, Huntington, chairman of the State Association's Low Cost Study Committee, addressed the conference on "The Medically Indigent and Low Income Groups in West Virginia," during the course of which he told of progress made by the committee in its study and deliberations. Dr. D. L. Butterfield, Charleston, director of the State Department of Public Assistance Medical Programs, then discussed the topic: "Medical Service and the Department of Public Assistance." The concluding address was delivered by Dr. W. M. Sheppe, Wheeling, chairman of the State Association's Syphilis Committee, on "Progress in Antisyphilitic Control in West Virginia."

From five to seven p. m., the conference speakers, delegates, officers and guests, attended a cocktail party as guests of the State Association at the Edgewood Country Club, and at eight p. m., they were guests of the Association at the annual dinner-dance of the Kanawha Medical Society at the Daniel Boone Hotel.

In addition to the officers and special guest speakers, the following were in attendance at the conference as delegates of their respective component societies:

Dr. Guy H. Michael, Belington, secretary of the Barbour-Randolph-Tucker Society; Dr. R. L. Hunter, Madison, secretary of the Boone Society; Dr. Jay L. Hutchinson, Huntington, secretary of the Cabell Society; Dr. A. B. Bowyer, Buckhannon, secretary, Central West Virginia Society; Dr. M. H. Porterfield, Martinsburg, secretary, Eastern Panhandle Society; Dr. C. E. Watkins, Harvey, president, and Dr. Gilbert Daniel, Alloy, secretary, Fayette Society; Dr. J. G. Leech, Quinwood, president, and Dr. R. E. Baer, White Sulphur Springs, secretary, Greenbrier Valley Society; Dr. J. G. Ralston, Clarksburg, president, and Dr. M. E. Farrell, Clarksburg, secretary, Harrison Society; Dr. T. G. Reed, Charleston, president, and Dr. A. Spates Brady, Jr., secretary, Kanawha Society; Dr. A. F. Lawson, Weston, president, and Dr. R. O. Pletcher, Weston, secretary, Lewis Society; Dr. J. Lester Patterson, Holden, president, and Dr. J. W. Carney, Logan, secretary, Logan Society; Dr. L. D. Norris, Fairmont, president, Marion Society; Dr. J. H. Toupkin, Pt. Pleasant, secretary, Mason Society; Dr. F. E. LaPrade, Welch, president, McDowell Society; Dr. Ben W. Bird, Jr., Princeton, president, and Dr. O. G. King, Bluefield, secretary, Mercer Society; Dr. G. W. Easley, Williamson, secretary, Mingo Society; Dr. Carl E. Johnson, Morgantown, secretary, Monongalia Society; Dr. R. W. Lukens, Wheeling, secretary, Ohio County Society; Dr. E. A. Courrier, Keyser, secretary, and Dr. W. A. Flick, Keyser, past president, Potomac Valley Society; Dr. William R. Goff, Parkersburg, president, and Dr. A. C. Woofter, Parkersburg, secretary, Parkersburg Academy; Dr. E. E. Watson, Albright, president, Preston Society; Dr. L. P. Stanley, Pine Grove, president, and Dr. E. C. Blum, New Martinsville, secretary, Wetzel Society.

The following attended as guests: Dr. Robert K. Buford, Charleston, chairman of the State Medical Association Legislative Committee; Dr. G. R. Miller, Fairview, member of the Association Council; Dr. R. M. Sloan, Huntington; Mr. R. A. Thetford, Williamson; Mr. John Hart, Charleston; Dr. A. E. Amick, Charleston; Dr. T. M. Barber, Charleston, treasurer of the State Medical Association.

Guests of the Association for the evening party at the Edgewood Country Club included the following state officials: Attorney General and Mrs. Clarence W. Meadows, State Compensation Commissioner A. G. Mathews, Mr. Ralph Hartman, secretary of the Workmen's Compensation Commission; State

Director of Public Assistance A. W. Garnett, and the following members of the State Advisory Board of Public Assistance: John T. Morgan, Charleston, chairman; A. S. Wilson, Sharples, and Dr. C. W. Waddell, Fairmont.

PRINTS AVAILABLE

The JOURNAL is pleased to announce that reproductions of "Beaumont and St. Martin", the famous painting by Dean Cornwell, M. D., are available for members of the West Virginia State Medical Association who care to write in for these prints. These reproductions are made available through the courtesy of Mr. George A. Kellogg,

"Beaumont and St. Martin"

of the American Home Products Company, holding company for Petrolagar, S. M. A., and John Wyeth and Brother. A small reproduction of "Beaumont and St. Martin" is printed herewith. Requests for copies should be sent to the State Association Headquarters at Charleston.

IN THE LEGISLATURE

As we go to press (January 24) no bills have been introduced in the legislature that will materially affect the medical profession. Bills which have been referred to the Committee on Medicine and Sanitation include the marriage physical examination bill, a bill to regulate the sanitary features of plumbing, a bill to provide added regulation of barbers and beauticians and a bill to regulate the sale of marihuana. A bill to exempt medicines and foodstuffs from the consumers sales tax has been introduced in the State Senate and referred to the Committee on Finance.

While these are the only measures affecting the medical profession at the present time, the 1939 session is still quite young. Probably before this JOURNAL appears, a bill to exempt faith healers from the provisions of the medical practice act will be in the hopper. This bill, sponsored by the Christion Science church, provides that the medical practice act of West Virginia shall not apply to those who treat the sick by spiritual means.

This faith healing bill will probably be a hard fought measure. It is now the law in 42 states and its sponsors appear to be concentrating on West Virginia. While the exemption desired by the Christian Scientists may not materially affect the doctor in private practice, it will seriously affect the public welfare of the people of West Virginia. From the standpoint of communicable diseases, the health officials of the state will no doubt wage a bitter fight against the faith healing bill. This proposed measure specifies with the exemption that the laws pertaining to communicable diseases must be carried out, but fails to explain how spiritual healers will arrive at their diagnosis. Immediately upon the introduction of this bill, a bulletin giving its number and title, as well as the arguments against it, will be forwarded to every county secretary for immediate action.

Two bills which have not yet made their appearance but which will probably be introduced within the next week or 10 days will, first, prohibit the use of the prefix "Dr." or "Doctor" by any person without following with suitable words or letters to indicate the degree, and, second, to give the state insurance department regulatory control over nonprofit hospital insurance corporations. Both of these proposed bills have been examined and studied. They are both meritorious measures and should receive the support of the medical profession. The hospital insurance bill is being sponsored by the Hospital Association of West Virginia and supported by the various group hospital plans now operating in the state.

Unquestionably there will be many other measures introduced during the 1939 session that will be of great interest to the doctors of West Virginia. Bulletins will be issued to the county societies by the headquarters office when such measures arise. If help is asked for, an immediate response will be expected.

Of all the special sense organs the eyes are the most advanced in structure and function.—*Hygeia.*

THE A. M. A. INDICTMENT

Last week *The Journal* published the complete text of the indictment of the American Medical Association and other defendants, in the District of Columbia, by a grand jury which, for some weeks, had heard a mass of evidence presented to it by attorneys from the Department of Justice, *The Journal of the American Medical Association* for January 7 says in an editorial:

"Elsewhere in the current issue of *The Journal* appears a chronology of this case from the time when the so-called Group Health Association, Inc., first appeared on the scene in the District of Columbia to the time when the grand jury made its report. Also in the Organization Section will be found a number of editorials and cartoons which have appeared in newspapers throughout the United States indicating, as far as such pronouncements can indicate, the public reaction to this extraordinary indictment.

"At the special session of the House of Delegates which was held in Chicago in September, the Board of Trustees of the American Medical Association, anticipating the government's activities, presented a consideration of the possibility of an indictment. This matter was referred by the House of Delegates, as is customary, to a reference committee and the report of the reference committee was unanimously adopted by the House of Delegates. This report authorized the Board of Trustees to employ suitable legal counsel and to carry this matter even to courts of last resort in order to determine the issue.

"Apparently the press of the United States finds it impossible to separate the activities of the Department of Justice from the proposal of a vast expansion of medical service under governmental control. Thus Gerald G. Gross, in the *Washington Post* of December 25, writes: 'A convincing case can be built up to support the theory that the extraordinary grand jury study was, to put it bluntly, propaganda looking forward to Congressional consideration of the proposed National Health Program.'

"The commentators in the American press, including even those newspapers which have been most persistent in the campaign for new methods of medical practice, have been well nigh unanimous in their opinions that the action of the Department of Justice under Mr. Thurman Arnold was the wrong way to achieve the objective if that objective is to be achieved. Certainly this legal procedure can do nothing to solve the problem of medical care. It is a pity that the federal government, including its executive, investigative and a considerable number of other departments should have embarked on a procedure which is inclined to cast public discredit on a great profession and to impugn the motives of workers in that profession. Moreover, a suitable defense will cost the Association a considerable sum of money that in the ordinary course of events would have been spent for the advancement of the science and art of medicine and the protection and promotion of public health. The time may yet come when those representatives of our government who have been chiefly responsible for initiating, conducting and manipulating this performance with all of its far-flung manifestations will review regretfully the part they have played in this incident."

PEARSON AND ALLEN

In newspapers throughout the United States on Sunday, January 8, *The Journal of the American Medical Association* for January 14 says, the column written by Drew Pearson and Robert Allen entitled "Washington Merry-Go-Round" contained the following item:

MEDICAL SOCIETY VAINLY TRYING TO COMPROMISE WITH U. S.

"Since their indictment last month by a Federal Grand Jury on charges of antitrust law violation, officials of the American Medical Society have made overtures to the Justice Department to compromise the case in out-of-court agreement.

"So far, the negotiations have got nowhere because of the physicians' insistence that the Medical Society be given special privileges under the law."

As far as is known in the headquarters office of the American Medical Association, no official of this Association has made overtures to the Justice Department to compromise the case; neither have the attorneys for the Association, nor has any official been authorized to make overtures or to conduct such negotiations. A telegram was sent to Messrs. Pearson and Allen calling attention to the misstatements of fact. No answer was received. Mr. Allen was then called on the telephone. He said: "We received our information from the Department of Justice from a source we consider unimpeachable."

The results of any tick bite may be serious from the introduction of dangerous parasites, but the bite itself may prove harmless.—*Hygeia.*

SYPHILIS CONTROL PROJECT

The U. S. Public Health Service cooperating with the State Health Department and Logan County Health Department, is operating a model experimental and research project for the control of syphilis in Logan county.

The personnel consists of a full-time venereal disease control officer, Dr. E. V. Jones, two full-time public health nurses acting in the capacity of medical case workers and a clerk. It is intended that Doctor Jones and the two nurses, Miss Sarah Switzer and Mrs. Eleanor McDonald Davis will devote their entire time to the study of syphilis and appropriate control procedures. Treatment facilities will be provided in a well equipped model clinic for indigent patients.

The case workers will make every attempt to trace every reported and every known contact and patients lapsing from treatment. They will also extend their services to private physicians who request the investigation of contacts and patients lapsing from treatment.

It is intended that this type of program will serve as a demonstration of the most accepted and proper method for the control of syphilis in any given area. Dr. Jones will determine the incidence of neurosyphilis, congenital, cardiovascular and other types of syphilis which constitute a major problem in West Virginia. Treatment methods will be evaluated as well as experimentation to determine the relative value and effectiveness of antisyphilitic drugs.

This project has been approved by the Logan County Medical Society and the members of the society have expressed their willingness to cooperate in every respect. A syphilis committee is to be appointed by the medical society to confer with Dr. Jones at all times in regard to the different problems that may arise in connection with the various activities.

COUNCIL ON MEDICAL EDUCATION

The Council on Medical Education and Hospitals of the American Medical Association held its fall meeting in Chicago on December 4, *The Journal of the American Medical Association* for December 10 reports.

Reports of recent visits to medical schools were considered. The Council noted the progress that had been made toward the preparation of a final report on the survey of medical schools which it is planned to publish in the spring or early summer.

The University of Arkansas School of Medicine, by vote of the Council, is now listed as being on probation.

A review of conditions at the University of Vermont College of Medicine and the Medical College of Virginia was postponed until the next academic year.

The American Board of Anesthesiology was approved.

A plan of cooperation which had been prepared by the Council and the American Board of Radiology was endorsed and it was recommended that other special examining boards be invited to participate in similar plans.

Representatives of the staff of the Cook County Hospital, Chicago, were informed that, while there has been no change in the status of the Cook County Hospital, the Council appreciates the efforts which have been made to improve conditions and the willingness of the executive committee to cooperate with the Council in further efforts to make it an outstanding center of medical education.

The Essentials of a Hospital Approved for the Training of Interns were amended so that after January 1, 1940, a minimum of thirty-six necropsies a year will be required, and for a service having 2,000 annual admissions at least three interns will be deemed necessary.

The scope of the Council's list of approved residencies was broadened and its title hereafter will be "Approved Residencies and Fellowships."

The Council voted that at least one year's training in general surgery should be a prerequisite for approved residencies or fellowships in such subdivisions of surgery as urology, orthopedic and thoracic surgery.

SYPHILIS-SEROLOGICAL EVALUATION

The State Hygienic Laboratory has for the past three years participated in the Syphilis Serological Evaluation Studies carried out annually by the United States Public Health Service. Last year when the final results were published, it was found that the state laboratory rated among the best ten participating laboratories in the country on its performance of the Kahn Standard test and the Kolmer-Wassermann test.

This year the State Hygienic Laboratory's Kline Exclusion test, which was entered for the first time, gave almost identically the same results as were obtained in Dr. Kline's laboratory (81 and 83 per cent positive results among known syphilitics, with

no false positives in the non-syphilitic group.) The joint results of Drs. Kahn and Kolmer diagnosed as positive 78 per cent of the known syphilitics of all stages; the joint results of the Kahn and Kolmer-Wassermann tests run on the same specimens by the West Virginia State Hygienic Laboratory diagnosed as positive 73 per cent of the known syphilitic group. No false positive results were found by Drs. Kahn, Kolmer or by the West Virginia Laboratory. The laboratory warns, however, that these results indicate that only false positive reports from these three laboratories are at a minimum; there is no laboratory and no known syphilis serological technique in which false positive results do not occur occasionally. Consequently, all laboratory results from whatever source should be looked at askance and should be repeated if they show unexplainable discord with definite clinical findings or with previous careful laboratory reports.

GASTROINTESTINAL DISEASES

Thirty per cent or more of all deaths in the first year of life are attributed to gastrointestinal diseases, the principal symptom of which is diarrhea, A. Graeme Mitchell, M.D., Cincinati, says in *The Journal of the American Medical Association* for January 14. Even in the second year of life these diseases still constitute the largest single cause of death.

The symptom, diarrhea, is a common one and the result of a great variety of diseases, some of which are not primarily gastrointestinal.

Diarrhea is helpfully eliminative when indigestible material is eaten or irritating chemical products enter the stomach and intestines or are formed there by bacterial action. Even an excessive intake of food otherwise digestible may cause an eliminative type of diarrhea.

The diarrheal diseases of childhood and especially of early infancy assume special significance, because the younger the child the more pronounced are the consequences of loss of body water through diarrhea. A diarrhea which would cause relatively little disturbance in an adult may be extremely serious in an infant.

The effects of high temperature and humidity may be important causes of diarrhea. Diet is a definite factor and even when the most improved methods of artificial feeding are employed, the breast-fed infant still retains an advantage in respect to the incidence of diarrheal disturbances.

County Society News

CABELL COUNTY

During the course of the regular monthly meeting of the Cabell County Medical Society at the Governor Cabell Hotel, Huntington, January 12, the entertainment committee of the society announced that a special "Appreciation Dinner" will be held at the Guyan Country Club, February 2, in honor of four members of the Cabell County Society who have been honored by and made outstanding contributions to organized medicine in the state and nation.

The honor guests at the formal dinner will be: Dr. Thomas W. Moore, ex-president of the Southern Medical Association; Dr. Walter E. Vest, president-elect of the Southern Medical Association; Dr. James R. Bloss, trustee of the American Medical Association, and Dr. Ray M. Bobbitt, president of the West Virginia State Medical Association.

Dr. Morris Fishbein, Chicago, editor of *The Journal of the American Medical Association*, will be the guest speaker.

The entertainment committee, headed by Dr. Oscar B. Biern, announced that the invitation of the committee for the dinner included not only the members of the Cabell County Medical Society, but, also, any and all members of the State Association who desire to attend. Dr. Biern requested that those planning to attend make reservations well in advance by communicating with him.

Dr. Irving J. Spear, Professor of Neuropsychiatry at the University of Maryland, was the guest speaker at the January 12 meeting, and presented a paper on the subject: "Neuronitis and Inflammatory Diseases Affecting the Spinal Nerve Roots."

JAY L. HUTCHISON, *Secretary*.

BARBOUR-RANDOLPH-TUCKER

The regular meeting of the Barbour-Randolph-Tucker County Medical Society was held at the Randolph Hotel, Elkins, on the evening of January 12 with 24 members in attendance. The election of officers for 1939 was the first order of business and Dr. J. M. Brand, Coketon, was elected president to succeed Dr. A. Parker Butt. Dr. L. U. Lumpwin, Elkins, and Dr. T. L. Woodford, Junior, were elected vice presidents and Dr. Guy H. Michael, Belington, was reelected secretary-treasurer. Dr. L. S. Magee was elected censor.

The guest speaker of the evening was Dr. Marvin H. Porterfield of Martinsburg who gave a very interesting talk with a case report on undulant fever.

Dr. Michael reported on the Conference of Secretaries and Presidents in Charleston on January 6. This was followed by a lengthy discussion and the society voted to take steps toward securing the appointment of a physician on each of the county public assistance councils within the confines of the society.

GUY H. MICHAEL, *Secretary*.

FAYETTE COUNTY

The Fayette County Medical Society held its regular monthly meeting at the Hotel Hill, Oak Hill, January 17, 1939, at eight p. m.

The meeting was devoted to a discussion of various medical relief problems in the county, with Dr. D. L. Butterfield, state director of the medical relief program giving a review of the state program. This was followed by a general discussion by members and several visitors, who are actively participating in the program.

Dr. R. B. Engle, Longacre, was accepted to membership in the society.

G. A. DANIEL, *Secretary*.

HARRISON COUNTY

With forty-five members of the Harrison County Medical Society and ten visitors from the Marion County Medical Society in attendance, the first regular monthly meeting of the new year was held by the Harrison County Society, January 5, at the Stonewall Jackson Hotel, Clarksburg.

Dr. Howard H. Bradshaw, of Jefferson Hospital, Philadelphia, was the guest speaker, and, with appropriate slide and motion picture illustrations, he made a capable presentation of the subject: "Surgical Treatment of Suppurative Diseases of the Lung."

The two members, Dr. C. L. Pearcy of Salem, and Dr. F. G. Genin of Clarksburg, were accepted by the Harrison County Society at the January 5 meeting.

MARCUS E. FARRELL, *Secretary*.

KANAWHA COUNTY

The Kanawha County Medical Society was host to visiting officers of the State Medical Association and presidents and secretaries of county and regional societies in attendance at the annual conference of county society secretaries and presidents of the West Virginia State Medical Association on the occasion of the society's annual dinner and dance, held January 6 at the Daniel Boone Hotel, Charleston.

Mr. Warren Roberts, Logan humorist, was the toastmaster for the dinner program.

No business was transacted at the meeting, but brief remarks were made by the retiring president of the society, Dr. B. H. Swint, and by Dr. Thomas G. Reed, the new president.

A. SPATES BRADY, JR., *Secretary*.

LEWIS COUNTY

Congressman Andrew V. Edmiston, Weston, representing the Third Congressional District of West Virginia, was the guest speaker at a special meeting of the Lewis County Medical Society, held December 22, 1938 in the Memorial Building, Weston.

Speaking on the subject of "Health Insurance," Congressman Edmiston predicted that aside from considering some plan to provide federal-state aid for the medical indigent, WPA employees, and possibly the low income group, the present session of Congress would not be marked by any radical developments, such as compulsory health insurance legislation. Mr. Edmiston assured the Lewis County Medical Society that he was opposed to horizontal health insurance for all classes of the citizenship through general taxation, believing such a system would destroy the important patient-physician relationship so essential to scientific progress.

When Congressman Edmiston concluded his remarks a general discussion of plans for the care of the indigent and low income groups was engaged in by the society, the general theme being, however, that any plan that might be devised would doubtless be difficult to establish and apply in rural areas where the need is greatest.

R. O. PLETCHER, *Secretary*.

LOGAN COUNTY

"Socialized Medicine" was the principal discussion topic at the first meeting of the new year for the Logan County Medical Society, held January 11, at the Aracoma Hotel, Logan.

Dr. Walter E. Vest, Huntington, was the guest speaker, and he spoke at length on the developments as they relate to socialization of medicine, having stressed particularly the part organized medicine in the state and nation has had in the more recent developments.

The next regular meeting of the Logan County Medical Society will be held at the Aracoma Hotel, Logan, February 8, with Dr. Ray M. Bobbitt, president of the West Virginia State Medical Association to be the guest speaker.

Dr. U. C. Lovejoy, Omar, was elected to membership in the Logan County Society.

J. W. CARNEY, *Secretary.*

MARION COUNTY

The Marion County Medical Society, at its annual organization meeting, elected the following officers for 1939:

President, Dr. L. D. Norris, Fairmont; vice president, Dr. F. E. Flowers, Mannington; secretary, Dr. John Helmick, Fairmont; treasurer, Dr. C. W. Waddell, Fairmont; delegate for two-year term, Dr. J. L. Blanton, Fairmont; delegate for one-year term, Dr. C. T. Francis, Fairmont; alternates, Dr. J. B. Clinton, and Dr. E. D. Wise, Fairmont; board of censors, Dr. J. R. Tuckwiller, Fairmont.

JOHN HELMICK, *Secretary.*

MERCER COUNTY

At the annual dinner-dance of the Mercer County Medical Society, held December 22, 1938, at the West Virginian Hotel, Bluefield, the following officers were elected for 1939:

President, Dr. Ben W. Bird, Princeton; Dr. C. H. St. Clair, Jr., Bluefield, vice president; Dr. H. G. Steele, Bluefield, treasurer (reelected); Dr. O. G. King, Bluefield, secretary (reelected); Dr. Hampton St. Clair, Bluefield, and Dr. Jim Vermillion, Princeton, to the board of censors for three-year and two-year terms, respectively; Dr. Steele, as delegate for two-year term; Dr. Frank J. Holroyd, Princeton, as delegate for a one-year term; Dr. R. O. Rogers and Dr. Wade St. Clair, both of Bluefield, were elected alternates for two and one-year terms, respectively.

O. G. KING, *Secretary.*

MINGO COUNTY

With the election of Dr. W. H. Price, Chattaroy, as president; Dr. F. B. Quincy, Williamson, vice president; Dr. George W. Easley, secretary-treasurer, and Doctors R. A. Salton, E. E. McClellan and G. B. Irvine, all of Williamson, as members of the board of censors, the Mingo County Medical Society held its annual organization meeting December 16, 1938, at the Williamson Memorial Hospital.

The January meeting, arrangements for which were made by a committee composed of Doctors G. T. Conley, G. B. Irvine and F. B. Quincy, was to have been a dinner-dance event.

Dr. O. P. Hodge, Matewan, led the scientific discussion period at the December 16 meeting, speaking on "Intradermal Use of Typhoid Vaccines in Gonorrhea," at the conclusion of which the society enlarged its discussion to include the therapeutics of gonorrhea. Dr. Hodge also reported on the meetings of the Southern Medical Association which he attended.

GEORGE W. EASLEY, *Secretary.*

MONONGALIA COUNTY

Meeting in the Marine Room of the Hotel Morgan, the Monongalia County Medical Society held its first regular monthly meeting of the year on January 3, preceded by dinner at six p. m.

Mr. Don Eddy, Morgantown, commissioner of accounts for Monongalia County, discussed the subject: "Methods of Proving Claims Against Deceased," and Dr. E. J. Van Liere of the West Virginia University School of Medicine discussed "The Effect of Anorexia on Some Bodily Functions."

G. R. MAXWELL, *Secretary.*

OHIO COUNTY

Dr. Edward J. Van Liere, dean of the School of Medicine, West Virginia University, Morgantown, read the principal scientific paper at the scientific session of the Ohio County Medical Society, held January 13, in the solarium of the Ohio Valley General Hospital, Wheeling. His subject was: "The Effect of Anorexia on Some Bodily Functions." Doctors W. T. McClure and H. G. Little led the general discussion which followed.

Dr. James T. Priestley of the Mayo Clinic, Rochester, was the guest speaker at the January 27 meeting of the society. His subject was "The Conservative Surgical Management of Hydronephrosis." Discussion was led by Dr. A. L. Jones, Dr. R. D. Gill and Dr. W. C. D. McCuskey.

R. W. LUKENS, *Secretary.*

PARKERSBURG ACADEMY

The regular monthly meeting of the Academy of Medicine of Parkersburg was held at St. Joseph's Hospital, Parkersburg, on the evening of January 4 with Dr. W. R. Goff, president, presiding. The guest speaker of the evening was Dr. Arthur M.

Shipley of Baltimore who gave a very excellent talk on "Surgical Aspects of the Thyroid Gland." Following the discussion and a short business session, the meeting adjourned.

A. C. WOOFTER, *Secretary.*

PRESTON COUNTY

The Preston County Medical Society organized for the year with the election of the following officers:

President, Dr. E. E. Watson, Albright; vice president, Dr. S. W. Jabaut, Rowlesburg; secretary-treasurer, Dr. C. Y. Moser, Kingwood; convention delegates, Dr. A. V. Cadden, Hopemont, and Dr. R. D. Harman, Kingwood; alternates, Dr. J. F. Lehman, Arthurdale, and Dr. David Salkin, Hopemont.

C. Y. MOSER, *Secretary.*

RALEIGH COUNTY

At the annual organization meeting of the Raleigh County Medical Society, December 15, 1938, the following officers were elected for the 1939 year:

President, Dr. L. M. Halloran, Beckley; first vice president, Dr. E. B. Wray, Glen White; second vice president, Dr. L. B. Hart, Beckley; secretary-treasurer, Dr. Newton DuPuy, Beckley; board of censors, Dr. K. M. Jarrell, Dr. R. G. Broaddus and Dr. E. S. DuPuy, Beckley; delegate for one-year term, Dr. Grover Hedrick, Jr., Besoco; delegate for two-year term, Dr. D. C. Ashton, Beckley; alternates, Dr. Frank Harkleroad, Beckley, and Dr. C. A. Smith, Raleigh.

NEWTON DUPUY, *Secretary.*

SURGICAL WOUNDS

Reopening of abdominal surgical wounds and postoperative hernia are on the decrease, Albert O. Singleton, M.D., and Truman G. Blocker, Jr., M.D., Galveston, Texas, point out in *The Journal of the American Medical Association* for January 14.

That state, in summary, that this is due primarily to more study of the problems involved in making and closing wounds, and to the more successful postoperative care due to the increasing use of gastric suction, obviating vomiting and distention by gas.

Disruption of wounds and postoperative hernia in the upper part of the abdomen, with their distressing consequences, can be almost completely eliminated by the use of carefully made anatomic incisions.

Woman's Auxiliary

FAYETTE COUNTY

The Woman's Auxiliary to the Fayette County Medical Society met at the Faymont Hotel, Montgomery, at one o'clock on January 19 with 10 members and four guests in attendance. Mrs. Ralph Hogshead, president, presided.

An interesting and diversified program was presented. Mrs. Harold Jones spoke on skin infections, Mrs. George Fordham on "Tuberculosis Among the Eskimos," Mrs. Roark on "Comparison of Christmas Feasts in Past and Present," and Mrs. M. W. McGhee on "Effect of Noises on Health." The next meeting will be held at Mount Hope or Oak Hill on February 16.

MRS. W. B. DAVIS, *Secretary.*

PARKERSBURG ACADEMY

The Women's Auxiliary to the Parkersburg Academy of Medicine met at Mrs. A. Morgan Dearman's residence in Parkersburg. Mrs. R. D. Lattimer presided at the meeting and twenty-six members were in attendance. Mrs. Archbold M. Jones presented a review of the book "Horse and Buggy Doctor" by Arthur E. Hertzler. Their next meeting will be held at the Chancellor Hotel, January 10, 1939.

MEDICAL CARE PLANS

The House of Delegates of the Michigan State Medical Society, at a special session held in Detroit on January 9, approved the principles of group hospitalization and group medical service and empowered the Society's Council, in cooperation with hospitals and civic groups, to proceed with the establishment of plans for the formation of non-profit organizations to provide these two types of service.

The group protection would take the form of insurance with rates and benefits fixed according to actuarial studies. Rates for the hospitalization plan would probably range, for care in a ward, from 60 cents a month for a single subscriber to $1.25 a family. Benefits would include twenty-one days' hospital care for the first year.

For the suggested medical service plan, an employed subscriber would be entitled to a maximum block of units of service, with an alternative plan based on a time consideration.

Public Health

The material in this monthly column is compiled and furnished by the West Virginia State Health Department

REPORTING OF VENEREAL DISEASE CASES

In determining the problem of venereal diseases in West Virginia reporting of cases by private physicians is of major importance to public health officials. Physicians are interested, primarily, in the diagnosis and treatment of venereal disease cases and disregard the fact that nearly every case of syphilis or gonorrhea in the acute infectious or early stage is a potential source of danger to the public. If every patient infected with syphilis remained under treatment until cured, or at least until rendered non-infectious, public health workers would not be faced with the task of investigating sources of infection or the origin of new cases. The busy physician cannot or will not assume the responsibility of investigating contact sources of known cases and makes little effort to apprehend those patients who have lapsed from treatment. It is for these reasons that every physician should regard it his duty to report venereal disease cases and those patients who fail to return for further treatment in order that the health department can institute effective and proper measures for the protection of the public.

For those physicians who are not familiar with the status of case reporting in West Virginia, it is important to point out the essential provisions of the venereal disease law. The law requires every practicing physician who makes a diagnosis in, or treats a case of syphilis, gonorrhea or chancroid, to make a report of the case to the municipal or county health officer located where the person lives. The report shall be submitted within forty-eight hours after a diagnosis is made or treatment started. The report shall state the name, address, age, sex, color, marital state, occupation of such person, date of the onset of the disease, and the source of infection. Although this method of reporting is desirable, in actuality it has not been effective. It has been suggested that the present system for reporting venereal disease cases be revised to the effect that physicians may report their cases by number, and in the event the patient discontinues treatment without permission of the physician, the case should be promptly reported to the health department by name and address for proper investigation and apprehension. This system has proved effective in other states.

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It is the impression of the Advisory Committee for the Study and Control of Syphilis in West Virginia and of the State Health Department that reporting is no better and no worse in West Virginia than it is in other states but undoubtedly the majority of physicians do not report their cases. During the fiscal year 1937-1938, private physicians reported 4,301 cases of syphilis and 1,628 cases of gonorrhea. The case rate per 100,000 population would therefore be 248 for syphilis and 94 for gonorrhea. During the previous year there were 1921 cases of syphilis and 396 cases of gonorrhea reported. Surveys conducted on selected groups, for example, employees in industry, WPA workers, college and high school students, barbers and beauticians and others, resulted in a percentage infected ranging from one to sixteen. However, for the population as a whole, it has been estimated that six per cent infected is a fair average.

The success of the program to control the venereal diseases in West Virginia depends largely on the willingness of private physicians to cooperate with public health officials. Do your part by reporting every case and administering adequate treatment to those infected.

BOOK REVIEW

TRAUMA AND INTERNAL DISEASE

Trauma and Internal Disease. By Frank W. Spicer, A. B., M. D., F. A. C. P. Cloth. Price $7.00. Pp. 593. Forty-three illustrations. Philadelphia. The J. B. Lippincott Company, 1939.

This very valuable treatise upon a medical subject which has heretofore received scant attention by medical authors is indeed timely, coming as it does when all elements of our population are becoming more and more litigation-minded. The author, who is an internist of Duluth, Minnesota, has covered the field well, and he presents the work as "a basis for medical and legal evaluation of the

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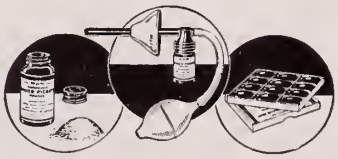

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etiology, pathology (and) clinical processes following injury", especially as affecting the different viscera. What we may call the purpose and the spirit of the volume is well summed up in the preface in an excellent manner, the gist of which is presented in the following quotations:

"The actual part that trauma plays as an etiologic factor in disease constitutes an interesting study, and the more that is known of the etiology, pathology and clinical processes following injury the more intelligent will be the care primarily given to the patient and the more judicious will be the adjustment of claims. The medical witness is often in grave doubt as to whether or not a certain post-traumatic condition should be ascribed to an alleged injury. Some questions, indeed, are debatable. Although medicine is not an exact science, there are on the other hand some positive facts that are not properly debatable but are, however, often debated, distorted, and twisted into possibilities and probabilities. The medical witness thus finds himself presented upon trial with medico-legal and pseudo-medical questions which had not previously occurred to him, and also often finds himself in unsound positions because of the acute minds of the attorneys, with the frequent result that he is forced on the spur of the moment to admit possibilities and probabilities foreign to his beliefs.

"This subject is important not only to the physician and his patient, but also to the attorney and his client, to the court, to the industrial commission, to insurance companies and to employers. Naturally, the physician and his patient are the ones most interested.

"Trauma as an etiologic factor in disease has been given very scant attention in this country. While there are about ten million accidents annually, only a few of these ever become medico-legal cases. The final decisions of courts and industrial commissions, however, depend upon the answers given by physicians to medical questions; similarly the decisions of attorneys relative to the settlement of claims, and to the question of whether to go to law with claims, depends upon medical answers. Therefore these problems must be studied carefully, and, when the question of trauma as the etiologic factor is to be answered, painstaking, impersonal, and scientific inquiry must be made before the answer is given. If this were the invariable practice patients would benefit; claim adjustments would be fair; there would be fewer verdicts based upon possibilities and

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probabilities; the diagnosis of traumatic neurasthenia, 'compensationitis,' and malingering would frequently be eliminated."

"The whole purpose of this book is to present a careful study of the rôle of trauma as an etiologic factor in the causation of disease of the viscera and bodily structures, and a discussion of the etiology, pathology, clinical processes, and end-results of serious or apparently trivial injuries, together with their early or tardy manifestations and effects upon a healthy organ or structure and also upon organs or structures that present evidence of preexisting disease."

"In brief, the author seeks to inculcate in the practitioner an attitude that will insure the investigation of the possibilities of trauma as a cause of disability, disease and death whenever there is clinical evidence of such a causal connection in similar cases. Hitherto many instances of such evidence have escaped the notice of most doctors. Purblindness of this sort the book seeks to end. Trauma, no doubt, is an hypothesis always to be cautiously and tentatively advanced. It is the contention of the author, however, that it should be advanced, and this work attempts to show why, and in what circumstances."

The initial chapter discusses well the general considerations and aspects of trauma as an etiological agent and the features to be considered when evaluating injury and its results upon the human organism. The author of this review has long been especially interested in the etiologic relationship of trauma to paralysis agitans, lesions of late syphilis, tuberculosis, peptic ulcer, aneurysm and heart disease, all of which are lucidly discussed by Dr. Spicer at length. Traumatic pneumonia is well presented. The bane of the railway surgeon's existence, "backache," is considered rather scantily and certainly "sacroiliac strain" is not accorded discussion its importance in industrial medicine merits. The giant "racket" of silicosis, which the author probably considers "industrial disease" rather "trauma" is not discussed. Many case reports illuminate the discussions and an excellent bibliography is presented.

Everything considered, the book is an excellent presentation of a moot subject and affords a scientific evaluation of a phase of medicine hitherto more or less chaotic in the literature. It is invaluable to all physicians interested in traumatic surgery, industrial medicine, and medico-legal work as well as compensation boards, and claim adjusters.

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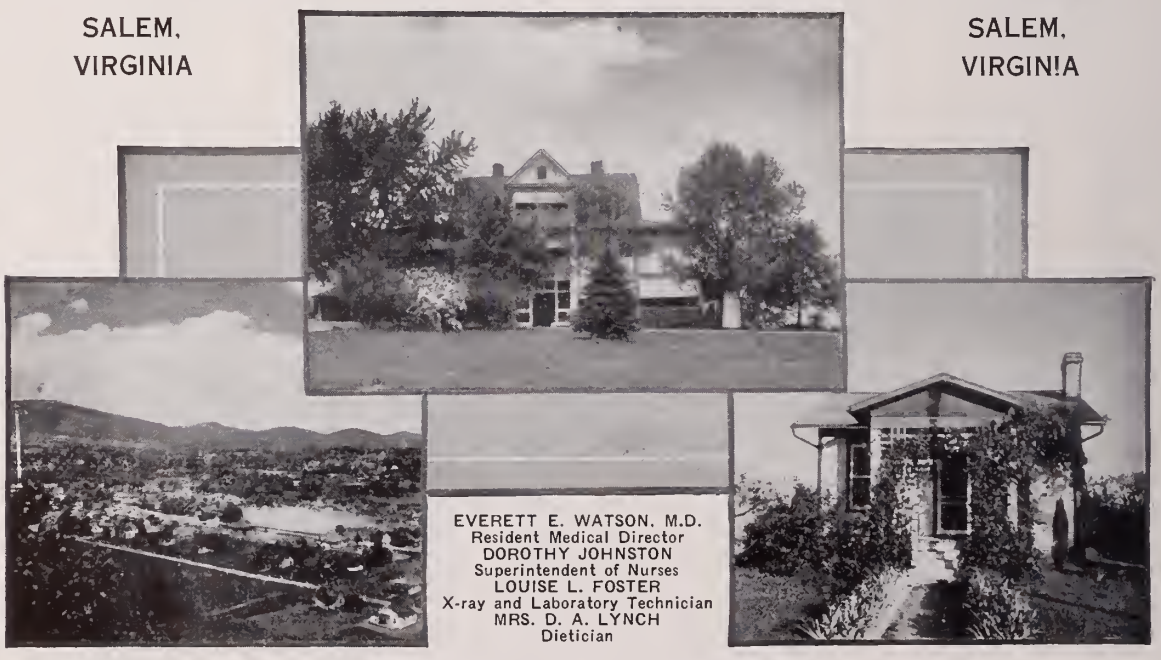

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SICKNESS INSURANCE IN EUROPE

Sickness Insurance in Europe. By J. G. Crownhart. Published by the author, Madison, Wisconsin. 1938. Cloth. $1.00.

The author, who is executive secretary of the State Medical Society of Wisconsin, was sent to Europe by the medical profession of his state to make a careful study of sickness insurance "with the thought of ascertaining whether in this legislation—or any adaptation, there lies promise of—advancing both the economic and the health interests" of the people of Wisconsin.

The volume is in the nature of a report to the profession of his state—"a factual report that would assist in moulding the future health structure" in Wisconsin, the author's "exact and independent findings—no more and no less."

Mr. Crownhart has performed the task committed to him faithfully and well. His initial chapter on the Problems of Medicine is a fine clear-cut presentation of the subject, one of the best brief discussions we have ever seen. The theory of sickness insurance is then discussed, the rôle it plays abroad, the British system in detail, its administration, accomplishments and shortcomings. Then the systems in operation in Norway, Sweden, Denmark, Germany (and Austria) and France are discussed and compared with the British system. The complexity of the various systems is discussed and the continual inherent conflict in actual practice between sickness insurance as a social service and as an insurance service is clearly presented. In his summation of this internal conflict running through all the systems in vogue in Europe as to "health service and sickness care aspects," the author reaches the following conclusions:

1. Sickness insurance is sold the public on the basis that it will perform a social service. Its required operation as an insurance institution defeats this purpose.

2. The fixation of premiums produces a situation in which the financial balance can only be maintained by ignoring the steady progress of medical science.

3. The beneficient intent of the legislation is accepted by the patient as a guarantee of a quality of service which the operation of the system makes it increasingly impossible to render.

4. The institution, as a trustee, feels that its obligation to preserve the funds for the possible future needs of the many now in good health is paramount to its duty to give the best possible care to the sick.

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This of necessity involves exercising of a wide measure of control of medical practice.

In answer to the question whether any system of sickness insurance may be envisioned for this country, Mr. Crownhart answers, "at a price," and he makes it very plain that much thought and careful consideration should precede a determination of the "price." We quote his final paragraphs:

"In arriving upon an estimation of the purchase price, our thinking will be confused if we try to establish our value on the basis of what has been accomplished abroad during the decades since the establishment of sickness insurance. If we are to make any comparison at all, it must be to ascertain whether our health advance in the same period has been faster or slower than that abroad. Even here the director of the statistical service for the Health Section of the League of Nations frankly expresses his belief that there are so many factors involved, not the least of which is a dissimilar basis for reporting, that there is little significance in comparing the health statistics of one country of homogeneous people with the United States, despite the fact that the figures available, with but few exceptions, reflect to the very credit of the United States.

"Our estimation rather must be based on not less than a state by state survey of health needs in our own country. We must then apply our knowledge of the operation of sickness insurance abroad to arrive upon independent conclusions whether the value of the purchase is realistic and sound, or whether this beneficient objective partakes of the characteristics of a mirage—seemingly real, inviting beyond measure, an apparent oasis for the weary,

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but failing to materialize when our energies have been used to bring us to the point where it appeared in our vision?"

All in all, this book is by far the best evaluation we have seen of the European experience of sickness insurance as it works out there in actual practice. The study and report are monumental, and constitute a work worthy of the son of the man who developed the first workmen's compensation department in America. In these times when our country hesitates upon the brink of the precipice of this idealistic but unworkable "reform," every doctor and every layman who wishes to understand just what "compulsory health (sickness) insurance" means he should "read, mark, and inwardly digest" this book.

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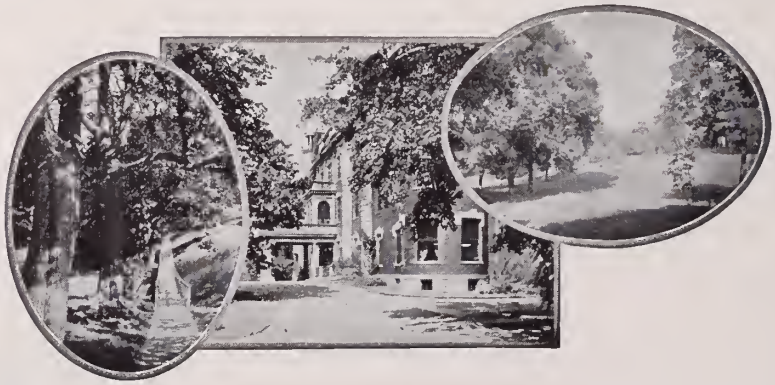

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NEW SYPHILIS TEST

A new test, requiring only fifteen minutes, for the demonstration of the syphilitic organism is reported by Leon Friedman, M.D., Philadelphia, in *The Journal of the American Medical Association* for January 14.

The test is especially applicable in cases of gonorrhea in which syphilis is suspected and, in comparison with other tests, saves considerable time.

The principle of the test is centrifugation of the gonorrheal discharge, or any other body fluid capable of being collected in a capillary tube, at low speed. This gives a clear specimen of serum suitable for dark field examination.

The author isolated the syphilitic organism from the gonorrheal discharge of one patient fifty days before the blood test showed the organism and in two patients whose history was not suggestive of syphilis.

SULFANILAMIDE CONCENTRATION

High concentrations of sulfanilamide will inhibit the growth and multiplication of bacteria, Perrin H. Long, M.D., Eleanor A. Bliss, Sc.D., and W. Harry Feinstone, B.S., Baltimore, state in their article, "Mode of Action, Clinical Use and Toxic Manifestations of Sulfanilamide," in *The Journal of the American Medical Association* for January 14.

With severe infections, capable of being cured by sulfanilamide, it is important to attain an effective concentration of sulfanilamide in the blood as soon as possible. The authors advise that a large initial dose of sulfanilamide be given in order to bring about the desired level of 10 milligrams per every 3.3 ounces (100 c.c.) of blood as quickly as possible and that this level be maintained by doses of the drug given at intervals of four hours both day and night.

The maintenance dose should be given until there is a marked improvement in the patient's condition. It should then be decreased slowly day by day, but should not be entirely discontinued until the patient is up and about.

If this routine is followed, recurrences of infection will be rare.

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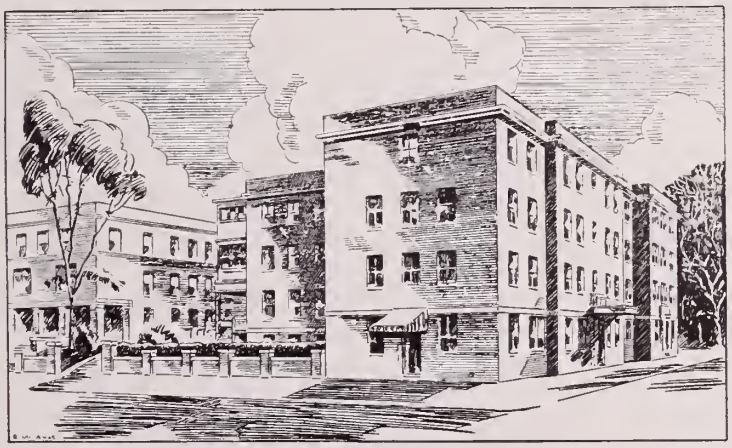

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In severe infections the administration of sulfa amide should be discontinued only if severe compi. cations occur.

In the case of milder infections, levels of sulfanilamide in the blood of from five to ten milligrams are generally adequate to bring the infection under control. Here again it is also important to maintain an even concentration of the drug and giving it at intervals of four hours is best.

If the patient cannot swallow tablets, if vomiting is present or if the sulfanilamide is not readily absorbed from the gastrointestinal tract, the drug can be injected.

The successful treatment of infections of the urinary tract with sulfanilamide depends to a large degree on obtaining and maintaining a satisfactory concentration of sulfanilamide in the urine. Such a concentration cannot be obtained in patients whose kidneys are impaired.

The amount of sulfanilamide per pound of body weight required to establish adequate levels of the drug in the blood is considerably greater for children than for adults. This is due to the fact that children take more fluid per pound of body weight than do adults, and when fever is present this difference is even more marked.

Sulfanilamide has produced many toxic complications. Among the most common ones observed in human beings are loss of appetite, nausea, vomiting, dizziness and headache. Alcohol is contraindicated during sulfanilamide therapy, as it tends to accentuate cerebral disorders. Patients who are receiving sulfanilamide should be warned against driving automobiles, because the dizziness and decreased mental acuity sometimes seen may render them dangerous on the road.

Because of the toxic complications the patient should be carefully supervised, hospitalized whenever possible, while sulfanilamide is being given. The patient who is receiving sulfanilamide needs the intelligent and careful supervision of a physician.

"GROWING PAINS" IN CHILDREN

The so-called growing pains in children have been variously interpreted as a normal phenomenon or as a manifestation of rheumatic fever, *The Journal of the American Medical Association* for January 14 says in an editorial.

Recently Hawksley reported an analysis of 115 cases of growing pains based on an examination of 1,000 children seen in London and Birmingham. Sixty-four of these 115 were subjected to follow-up

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examinations four years after the initial examination. Although no definitely associated diseases were discovered, there was commonly a history of frequent colds and coughs with coincident exacerbation of pains, signs of general but vague ill health, rather frequent minor orthopedic deformities, some fibrositis in certain cases and psychologic maladjustment. In conjunction with the 189 cases followed up by Sheldon and the sixty-four here reported, cardiac rheumatism was revealed to have developed in less than 0.8 per cent.

Hawksley concluded that the syndrome of growing pains is not related to rheumatic fever or subacute rheumatism and does not provoke rheumatic carditis. The pains may be associated with a number of conditions which can usually be discovered and treated by ordinary clinical methods.

This work finds substantial agreement with a similar study reported by Shapiro at the June meeting of the American Rheumatism Association. Shapiro made a follow-up study at the Lymanhurst heart clinic of 200 children who complained only of leg pains. The pain characteristically comes on at the end of the day and often awakens the patients during the night. Laboratory studies gave normal results. None of Shapiro's patients developed rheumatic heart disease. He concluded therefore that this syndrome, which is so common during healthy school childhood and adolescence, is due to normal growth and clearly not to rheumatic fever.

The discussion following this paper indicated general accord on the nonrheumatic nature of most so-called growing pains. In the light of these more recent observations, great skepticism should be attached to a diagnosis of rheumatic fever in those children whose only symptoms consist in vague muscular pains and aches in the lower extremities.

HODGKIN'S DISEASE

The selective action of the x-rays furnishes medical science with a positive method of diagnosing Hodgkin's disease in internal regions of the body where the tumorous tissue is not obtainable for microscopic diagnosis. S. Ginsburg, M.D., New York City, discusses this malady in his article entitled "Hodgkin's Disease" in the February issue of *Hygeia*. This disease, about which little is known, is characterized by tumor-like swellings. At first thought to be confined to the lymph glands, the spleen, the tonsils and the lymphoid tissues at the base of the tongue and throat, investigation has shown that Hodgkin's disease may attack almost any organ or tissue of the body.

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THE PATHOGENESIS OF LOW-BACK PAIN*

By EDWARD L. COMPERE, M. D.**
Chicago, Illinois

THE most common complaint of patients who come to the orthopedic clinic is of backache. So long as surgeons disagree in regard to the pathogenesis of chronic low-back pain, there cannot be any uniformity of opinion concerning treatment. The same indications for conservative or operative treatment are rarely stated by any two men who have written upon this subject. Each surgeon has his own explanation of the primary causes of low-back pain, his own program of conservative treatment, and, if operation is decided upon, his own pet variation in technique for carrying out his favorite operative procedure. Those surgeons who advise operation for almost every patient with a chronic lame back are justifiably considered to be dangerously radical by those who are more conservative in their programs. This question does present the problem of whether or not the sins of omission, or failure to operate in low-back conditions in which there are definite indications for so doing, are greater than the sins of commission of those surgeons who are less critical in analyzing their patients to determine whether or not there are sufficient indications for surgery.

THE AUTHOR

Dr. Edward Lyon Compere, Chicago, graduate Rush Medical College; American Board of Orthopedic Surgery; American Academy Orthopedic Surgeons; Associate Professor of Orthopedic Surgery, The School of Medicine of the Division of Biological Sciences, University of Chicago.

Sound surgical judgment can come only with better understanding of the normal as well as the morbid anatomy and physiology of the lumbosacral and the sacroiliac articulations.

I have attempted to analyze the factors which may play a rôle in producing changes in the low-back region, which in turn may cause low-back pain. The percentages given in Table I are at best only approximately

*Presented before the seventy-first annual meeting of the West Virginia State Medical Association, White Sulphur Springs, West Virginia, July 13, 1938.

**From the Division of Orthopedic Surgery, Department of Surgery, The University of Chicago.

accurate. They were prepared from a study of the records of 2,242 patients who came to the University of Chicago Clinics with a primary complaint of low-back pain.

A review of Table I will reveal the fact that it was my impression that approximately 83 per cent of patients who complained of low-back pain had pathology localized to the lumbosacral articulations (L4 to S2 inclusive.) Approximately 90 per cent of these lesions were mechanically produced, although congenital anomalies, age, or metabolic processes may have been predisposing factors.

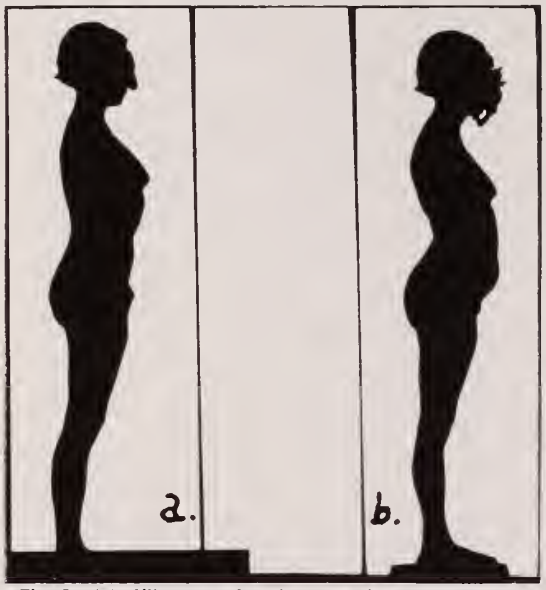

Fig. 1: (a) Silhouette of patient standing correctly with a normal lumbar curvature, chest up and out, and normal pelvic obliquity. The abdominal muscles are in good tone, flattening the abdominal wall and lifting the pelvic brim anteriorly. (b) The same patient standing carelessly without regard to body mechanics. Note the increased lumbar lordosis, relaxed abdomen, forward tilt of pelvis, flat chest.

TABLE I

Etiology of Low-Back Pain
A Study of 2,242 Patients
Anatomical Localization

I. Lumbosacral lesions—83 per cent of total.
   A. Mechanical—(75 per cent of total or 90 per cent of lumbosacral causes of low-back pain).
      1. Chronic malposture, which may result from: (Fig. 1.)
         (1) Habit,
         (2) Chronic fatigue,
         (3) Poliomyelitis,
         (4) Short leg,
         (5) Scoliosis,
         (6) Vertebral epiphysitis.
      2. Secondary to acute sprain.
      3. Discogenetic (loss of intervertebral disc).
         (1) Secondary to chronic wear and tear of daily activity.
            (a) Malposture may predispose or accentuate.
         (2) Following acute injury with rupture of disc and loss of nucleus pulposus material into:
            (a) Paravertebral ligaments,
            (b) Spinal canal,
            (c) Spongiosa of vertebral body.
         (3) Degenerative or metabolic changes:
            (a) Senile osteoporosis,
            (b) Senile dehydration and thinning of disc L5 - S1 or L4 - L5,
            (c) Osteomalacia.
      4. Spondylolisthesis and congenital anomalies.

Note: Osteoarthritis of the articular facets, sclerosis of contacted vertebral bodies and osteophyte formation are the usual end result of the discogenetic lesions.

   B. Chronic infections—(three per cent of lumbosacral lesions).
      1. Osteomyelitis of the spine or appendages,
      2. Arthritis (other than traumatic),
      3. Tuberculosis,
      4. Miscellaneous (syphilis, malta fever spondylitis, etc.)
   C. Neoplasms, benign or malignant, less than one per cent. Neoplasms, primary or metastatic, less than one per cent.

II. Sacroiliac Lesions—12 per cent of total.
   A. Mechanical—(90 per cent of lesions producing pain in the sacroiliac articulation or 10.8 per cent of total of causes of low-back pain.)
      1. Secondary to relaxation of the pelvic articulations during pregnancy, or the trauma of parturition.
      2. Secondary to acute sprain from lifting a load, a car accident or fall.
      3. Degenerative changes in the articular cartilage—(a) Resulting from wear and tear of daily activity.

B. Infections—five per cent of sacroiliac lesions.
C. Neoplasms—five per cent of sacroiliac lesions.

III. Miscellaneous causes of low-back pain—five per cent of total.
A. Primary neurological lesions—(less than one per cent).
1. Tumors of the spinal cord or meninges,
2. Chronic inflammation of spinal cord or meninges,
3. Neuropsychiatric syndrome.
B. Visceral causes of low-back pain—(three per cent).
a. Pelvic:
(1) Chronic pelvic inflammation,
(2) Retroversion of uterus,
(3) Ovarian cyst,
(4) Fibroids of uterus.
b. Abdominal:
(1) Inguinal hernia — (probably the most common),
(2) Appendicitis,
(3) Cholecystitis,
(4) Chronic ulcerative or irritable bowel,
(5) Duodenal or jejunal ulcer.
c. Genitourinary:
(1) Renal calculus,
(2) Nephritis,
(3) Pyelitis.
d. Neoplasm of abdominal viscera.
C. Hypertrophy of ligamentum flavum—none so diagnosed in our series.
D. All others—one per cent.

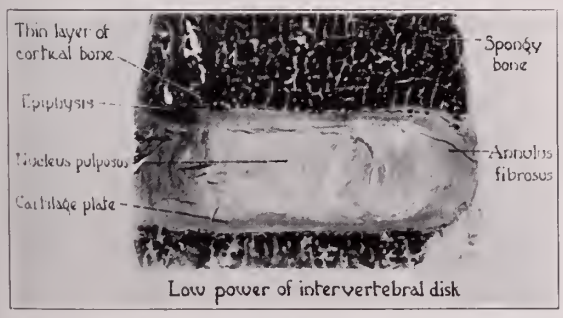

Fig. 2: Normal intervertebral disc of young adult patient. Sagittal section.

Sacroiliac lesions, if our diagnoses were correct, accounted for 12 per cent of the causes of low-back pain. Approximately 90 per cent of the sacroiliac lesions were of a mechanical nature. The largest group was secondary to relaxation of pelvic articulations during pregnancy or to the trauma of parturition. Infectious types of arthritis did not account for more than three to four per cent of the total low-back pain lesions. Among miscellaneous causes of low-back pain, as shown in Table II, were included those which were primarily neurological, and those which were a result of visceral lesions with pain referred to the low-back region. In no instance

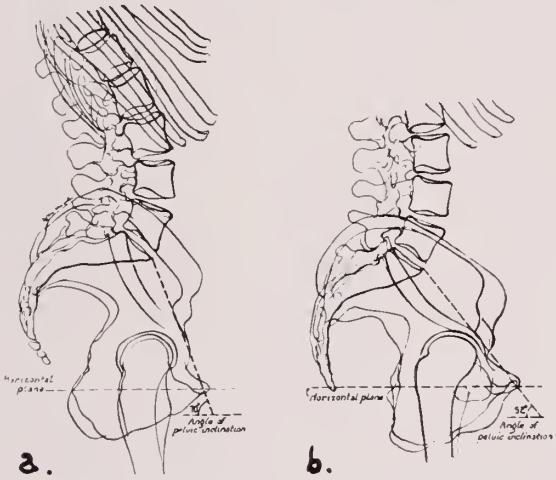

Fig. 3: (a) Diagrammatic sketch made from tracing of roentgenogram of patient in Fig. 1. Note the increased pelvic obliquity, horizontal sacrum, and backward shift of the weight load with the line of gravity centered over the articular facets posteriorly. (b) Shows the degree of correction through the voluntary contraction of abdominal and gluteal muscles.

was a diagnosis of hypertrophy of the ligamentum flavum made. I have not been willing to accept this as a clinical entity or a primary cause of low-back pain. It is at least possible that the relief which follows excision of a portion of the ligamentum flavum, which may or may not be definitely thickened, is merely that which often follows a decompression operation.

In view of the fact that it is obviously not possible to discuss in detail the various etiological factors which may produce low-back pain or the treatment indicated in each individual type of lesion, I shall attempt to confine this discussion to the backache syndrome produced by lesions of a mechanical nature affecting the structure or function of the intervertebral disc between the fourth and fifth lumbar and the fifth lumbar and

the sacrum, and the changes which may be secondary to such lesions. I shall also attempt to emphasize to this group, made up of specialists and of physicians in general practice, a fact which both the orthopedic surgeon and the general practitioner may overlook: that visceral lesions may cause primary symptoms of low-back pain and lesions of the spine may also produce visceral symptoms which sometimes mislead the examining physician into erroneous diagnoses and unnecessary operations.

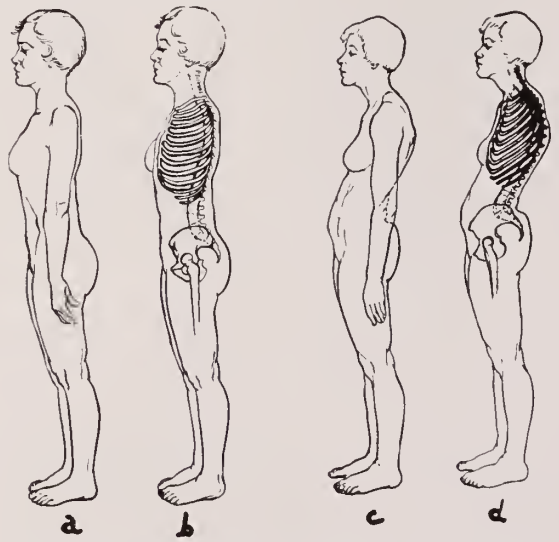

Fig. 4: Artist's sketch of patient standing with good posture (a), (b) and extremely poor posture (c), (d), showing changes in body contour and in the skeletal alignment.

Low-back pain which is secondary to changes in the intervertebral disc has been aptly designated the discogenetic syndrome. In Table II, I have described in outline form the various steps by which I have attempted to explain the pathogenesis of this, the largest single group, composing probably between 60 and 70 per cent of all of the patients who complain of pain in this region.

TABLE II

Mechanism of Production of Pain in the Discogenetic Syndrome (Lumbosacral)

I. Narrowing of intervertebral disc space L4 - 5 or L5 - S1. (Fig. 2.)
   - (a) May result from acute injury with:
     - (1) Rupture of fibers of the annulus fibrosus, and
     - (2) Escape of nucleus pulposus material.
   - (b) The disc may gradually wear thin from traumata of daily activity.
   - (c) Postural lordosis shifts weight bearing stress to posterior portion of the disc. (Fig. 3.)
     - (1) Compression or extrusion of disc material with posterior narrowing may follow.
     - (2) The retropulsed disc may compress cord or nerve roots.

II. When the disc no longer functions effectively as a shock absorber or axis of motion, the axis and hence the strain is shifted posteriorly to the small and inadequate articular facets, resulting in:
   - (a) Increased lumbar lordosis and pelvic obliquity. (Fig. 4.)
     - (1) The sacrum occupies a more horizontal position,
     - (2) The lumbosacral angle becomes more acute,
     - (3) Sacrospinalis muscle spasm may increase the discomfort and the mechanical disalignments,
     - (4) The iliotibial band and flexor muscles of the hip may become shortened.
   - (b) The ligaments supporting the lateral articulations become lengthened or partially avulsed.
   - (c) Partial luxation of facets L4 on L5, or of L5 on S1:
     - (1) L5 may become posteriorly displaced on the sacrum, creating what has been termed "posterior spondylolisthesis",
     - (2) Osteoarthritis of the articular facets.
   - (d) As the facets subluxate, L5 slips posteriorly and the acuteness of the lumbosacral angle increases, the neural foramen through which the L4 or L5 nerve roots pass, becomes smaller in diameter.

Note: The facet syndrome described by Ghormley and Putti is merely part of the end result in this explanation of lumbosacral pain. The spasm of the piriformis muscles described by Freiberg and of the gluteus maximus muscle mentioned by Heyman are probably merely secondary phenomena. The tight iliotibial band, of which Ober has written, may drag the pelvis down anteriorly, increasing the acuteness of the lumbosacral angle and shifting the weight and strain of motion back toward the facets. But it is probable that this is rarely a primary cause of the low-back pain.

(1) Swollen ligaments in the canal, osteoarthritic osteophytes, or the facet itself may compress the nerve root, producing sciatica.

III. Further loss of disc substance may permit L5 to settle uopn S1. (Fig. 5.)

(a) Inadequate protection from the disc will lead to increased stress and mechanical irritation between the contacted surfaces of L5 and S1, resulting in:

(1) Sclerosis of the contacted vertebral surfaces,

(2) Marginal lipping or osteophyte formation.

The following cases are illustrative of those whose complaint of low-back pain was thought to be caused by the discogenetic lesion:

Case 1: A. K., male, age 39 years, came to the University of Chicago Clinics, June 7, 1938, complaining of pain in the region of the right hip and the right ankle. He stated that he first noted vague aching pains in the lumbar region two years before this admission. These pains were transient and intermittent but gradually became more severe and for approximately six months the pain had radiated down the back of the right leg. It was most marked on the outer side of the calf of the leg, between the knee and the ankle and in the region of the lateral malleolus. When he was seen here, the pain was constant and so severe that he had not been able to sleep at night without taking a sedative. There was no history of rheumatism or of arthritis and no foci of infection could be found.

An examination of the röentgenograms revealed partial lumbarization of the first sacral segment, roughened irregularity of the articular facets between the fifth lumbar and the first sacral on the left side and in the lateral view there could be demonstrated narrowing of the intervertebral disc space L5 to S1. The sacrum was almost horizontal and there was an increase in the acuteness of the angle between the sacrum and the fifth

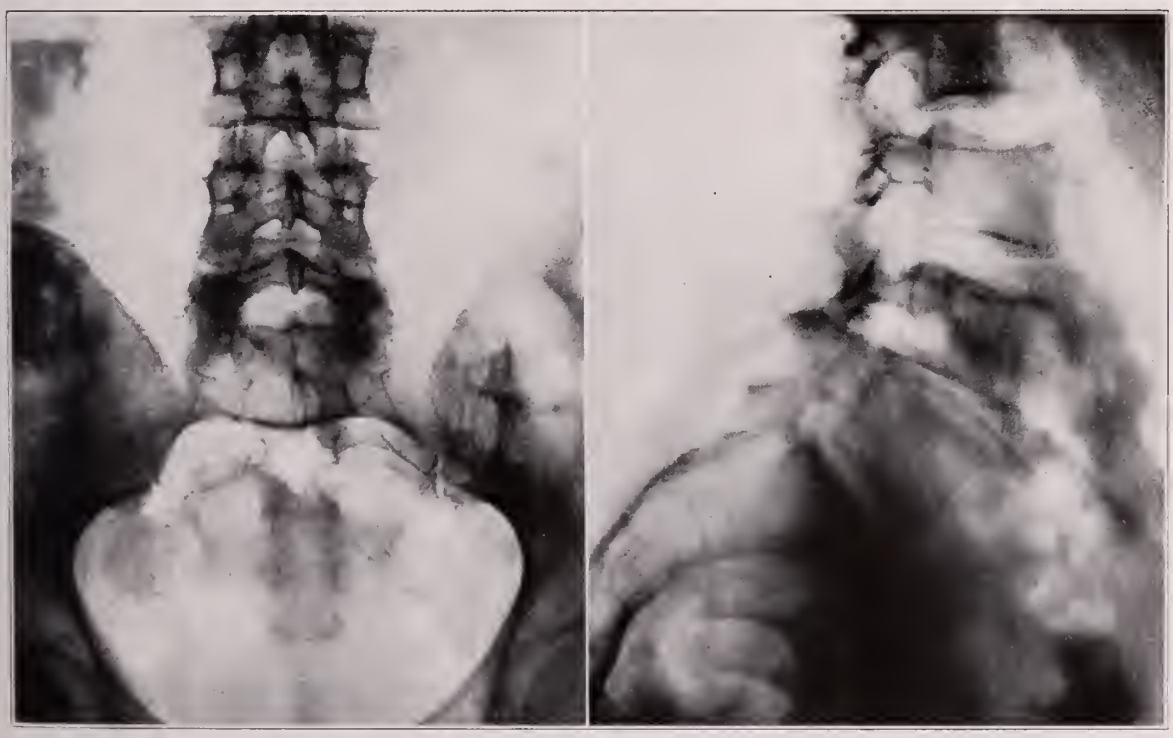

Fig. 5—Case 1. A. K., Low-Back Pain and Sciatic Neuritis: The articular facets L5 - S1 on the left side are not clearly defined. There is some narrowing of the intervertebral disc L5 - S1. These roentgenograms were taken with the patient reclining. The luxation of the articular facets and narrowing of the neural foramina are more marked when patient is standing. This patient was manipulated under a general anesthetic with complete and immediate relief of the sciatic pain which he had suffered for six months.

lumbar vertebra and in the pelvic obliquity. (Fig. 5.) The line of weight bearing stress had shifted backwards to the articular facets and the foramen through which the fifth lumbar nerve root emerges was decreased in diameter. This patient was manipulated and treatment instituted as outlined in Table IV, with immediate relief of the sciatic radiation of pain and subsequent recovery from the disability.

TABLE III

Diagnosis of the Chronic Lumbosacral Syndrome (Discogenetic Pain)

I. History.
  A. Low backache for months or years.
    (1) Injury from a fall or sudden strain as in lifting may be suggested as the cause,
    (2) More marked when tired,
    (3) Accentuated by strain of lifting,
    (4) More comfortable when sitting slumped in a chair (flattens lumbar spine), than in standing or lying prone,
    (5) Position assumed for comfort in sleeping:
      (a) Lying on back with bolster under the knees.
      (b) On side, thighs flexed and pillow between knees.
  B. Sciatic pain.
    (1) Most commonly on outer side of leg between knee and ankle and over lateral malleolus (fifth lumbar root distribution),
    (2) May be bilateral and if so probably includes L4 root distribution.

II. Physical examination.
  A. Inspection:
    (1) Hollow back (lumbar lordosis),
    (2) Prominent abdomen.
    (3) Increase in pelvic obliquity.
  B. Palpation:
    (1) Spasmodic contracture of sacrospinalis or iliopsoas muscles, which may be unilateral, producing a pelvic list, or bilateral,
    (2) Iliotibial band may be tight or contracted,
    (3) Gluteus maximus and abdominal muscles are commonly soft and "flabby",
    (4) Tenderness to deep pressure over the articular facets L5 - S1.
  C. Manipulation:
    (1) Bending in all directions may be limited by pain or muscle spasm,
    (2) Backward bending produces localized lumbosacral pain and may cause radiation of pain into sciatic nerve,
    (3) Straight leg raising resisted by tight hamstring muscles may produce lumbosacral or sciatic pain when forced,
    (4) Complete thigh extension with the pelvis held fixed by complete flexion of the other thigh, prevented by short iliotibial band and hip flexor muscles,
    (5) Rectal or vaginal examination not expected to elicit tenderness when coccygeal or sacroiliac ligaments are palpated,
    (6) Test all reflexes of the lower extremities.
      (a) Long continued nerve root compression causing sciatic pain may produce changes in sensation or reflexes and occasionally motor paralysis, such as complete foot drop.
  D. Röentgenogram of the lumbosacral should always include a good lateral view.
    (1) Anteroposterior or oblique views may show subluxation or osteophyte formation in the articular facets L4 - 5 or L5 - S1.
    (2) The lateral röentgenogram may demonstrate:
      (a) Narrow intervertebral disc space L5 - S1.
      (b) Sclerosis of approximating surfaces of vertebral bodies L5-S1.
      (c) Marginal osteophyte formation of the vertebral bodies L5-S1.
      (d) Subluxation of articular facets L5 - S1.
      (e) Approximately horizontal sacrum.
      (f) Increase in acuteness of angle between the sacrum and the lumbar spine.

(g) Increased pelvic obliquity.
(h) Narrowing of the foramina through which the fifth lumbar nerve emerges.

E. Spinal puncture may reveal:
(1) Increase in protein content. This suggests rupture of disc material into the spinal canal and is indication for:
(2) Lipiodol injection (five cc. recommended).
(a) May show a deformed shadow in the röentgenogram of the lower lumbar or sacral canal.

Case 2: H. R., female, age 39 years, a graduate nurse, entered the University of Chicago Clinics, July 21, 1937. On the preceding day she had slipped on the rocks of the breakwater while swimming in Lake Michigan. She was completely disabled with pain in the back and the left leg. She was treated by traction on the leg and subsequently by a cast and remained in the hospital for six weeks. At no time was she free from pain, although the severity gradually became less marked. Pain in the back and occasional pain in the left leg persisted during the succeeding months. The pain became acute when she attempted to lift any heavy object and backward bending also caused an exacerbation of the sciatica.

About ten months after her original entry, she slipped and fell on a waxed floor and was again totally disabled with pain in the low-back and down the left leg. She then consulted me in the Orthopedic Clinic. An x-ray revealed narrowing of the disc space L5 to S1 and the clinical findings were typical of the discogenetic lesion which is described in Table II. She was manipulated under a general anesthetic, given physical therapy and a hollow-back brace. She was seen again three weeks after this manipulation and at that time was found to be completely relieved of her previous disability. The treatment program followed for both of these patients is outlined in detail in Table IV, section II.

The diagnosis of chronic lumbosacral syndrome or discogenetic lesion may be made on the basis of history and physical examination together with röentgenograms and, in a few instances, spinal puncture, as outlined in Table III. Treatment for this discogenetic syndrome depends upon the age of the patient, the severity of the disability and, in particular, whether or not sciatic pain is present. If the patient cooperates, most of these cases can be restored to functional usefulness and a reasonable degree of comfort, without operative surgery.

TABLE IV

Treatment for the Lumbosacral Discogenetic Syndrome

I. Mild cases. No sciatica.
(a) Extra rest period daily.
(b) High vitamin diet.
(1) Low caloric diet for the obese.
(2) High caloric for the malnourished.
(c) Infra-red ray or inductotherm followed by massage to the back.
(d) Exercises for strengthening the gluteus maximus and abdominal muscles.
(e) Exercises for stretching tight hamstring muscles, iliotibial band, and for correcting the lumbar lordosis.

Fig. 6: Three views of the hollow-back brace which is similar to that recommended by Goldthwaite and modified by Williams. This brace provides an excellent support for the abdominal muscles and serves to derotate the pelvis, decreasing its obliquity and the lordosis of the lumbar spine. It has been a very successful instrument in treating patients with the lumbosacral or discogenetic syndrome.

(f) Hollow-back brace for six months to one year. (Fig. 6.)

II. More severely disabled patients and all cases in which sciatic neuritis is present:
   (a) Manipulate under general anesthesia.
      (1) Forced straight leg raising to stretch the hamstring muscles.
      (2) Hyperextension of hips with pelvis fixed to stretch hip flexors and the iliotibial bands.
      (3) Flexion of both hips and knees extended to correct the lumbar lordosis.
   (b) Plaster cast, body and both legs, for three weeks after manipulation, is advisable in the severe cases where there have been neurotrophic changes.
   (c) Rest on a firm mattress for one week following manipulation should be sufficient for the milder cases.
   (d) After manipulation continue program as described under I.

III. Operative treatment.
   (Limited to the cases not functionally relieved by the nonoperative program)
   (a) Manipulate as described above (II).
   (b) If sciatic neuritis is present, excise the articular facets L4-5 and L5-S1.
   (c) Arthrodese L4 and 5 to the sacrum.
   (d) Maintain a normal lumbar curvature through the utilization of a plaster cast or shells while the spine is fusing.

The principal difficulties in diagnosis are found in attempting to exclude lesions of the sacroiliac joint, neoplasm, primary neurological disease, and lesions of the viscera in which pain may be referred to the low-back region. If the history is accurate and the examination is carefully conducted, errors will be few. In Table V, a few of the errors which have been made in diagnosis and treatment of low-back pain are listed. In most of the cases in which a primary lesion of the lumbosacral region was suspected but could not be demonstrated, the patients were referred to other clinics before introducing orthopedic measures. In some of the patients the visceral lesion was definitely suspected and tentatively diagnosed in the Orthopedic Out-Patient Department. Occasionally changes noted in the spine were erroneously thought to account for the symptoms, and an orthopedic program was begun. When the patient did not benefit from this treatment, further examinations were made and some of the visceral lesions listed herewith were discovered and treated, with relief of symptoms which the back brace and orthopedic program had not helped.

Every internist and surgeon is aware, either because of lessons learned from his own errors of judgment or as a result of competent medical teaching, of the dangers of diagnosing tabetic crisis as an acute abdomen. Little emphasis has been placed in medical teaching, in text-books and systems of medicine, or in the vast literature dealing with abdominal symptomatology, upon the relatively common fact that the etiology of visceral pain sometimes may be found in the spine or spinal cord. On the other hand, while the wise orthopedic surgeon hesitates to undertake treatment to relieve pain in the back without first carefully examining the patient for evidence of primary neurological disease, pathology of the female pelvis, or of the male urogenital organs, few, indeed, are alert to the equally important fact that diseases of the chest or of the gastrointestinal organs may produce, as the primary complaint, pain in the back.

TABLE V

A few of the errors which have been made in diagnosis or treatment of low-back pain.
(Review of 2,242 cases)

A. Visceral lesions producing low-back pain, in which the primary lesion was not recognized until after treatment was directed erroneously and unsuccessfully to the back.
   (1) Duodenal ulcer,
   (2) Chronic colitis,
   (3) Appendicitis,
   (4) Carcinoma of the rectum,
   (5) Inguinal hernia,
   (6) Chronic pelvic inflammatory disease,
   (7) Tumor of urinary bladder,
   (8) Jejunal ulcer.

B. Lesions of the spine which produced visceral symptoms, confusing the diagnosis:
   (1) Symptoms of appendicitis were produced by:
      (a) Tuberculosis of the spine,
      (b) Scoliosis,
      (c) Giant cell tumor of vertebra,
      (d) Arthritis.

(In several cases normal appendices were removed before the spinal cause of the pain was recognized.)

   (2) Surgery of the female pelvis, including at least three panhysterectomies, had been performed on a surprisingly large group of patients before coming to our clinic. This surgery did not relieve the low-back pain which was lumbosacral or sacroiliac in origin.

C. Other errors (subsequently corrected) included:
   (1) Institution of treatment for low-back pain in patients with primary neurological lesions (15 with tumors of the spinal cord or meninges in which the entrance complaint was of low-back pain).
   (2) Removal of teeth, tonsils or other supposed foci of many patients whose disability was the result of mechanical disarrangements of the lumbosacral or sacroiliac articulations.
   (3) Removal of teeth, tonsils, etc., of patients in whom a diagnosis was later made and confirmed of neoplasm of the spine or pelvis.
   (4) Diagnosis of acute abdomen of patients who had been severely injured, in which the paralytic ileus was secondary to a contusion or fracture of the spine.

Case 3, is an example of one patient in whom the complaint was low-back pain which was caused by a jejunal ulcer.

Case 3: Jejunal Ulcer Causing Low-Back Pain: E. K., female, age 31 years, came to the Orthopedic Clinic at the University of Chicago, November 29, 1937, complaining of low-back pain, intermittent in character, nonradiating, the onset of which she dated from approximately 20 years earlier, when she had suffered a fall. There had been intervals of freedom from the backache of from six months to two years. One year before coming to the University of Chicago Clinic, a diagnosis of duodenal ulcer was made, a gastroenterostomy was performed and the appendix was removed. The pain in the back had returned a short time afterward.

Examination of the spine revealed no pain upon bending or manipulation and no limitation of motion. She was not made comfortable by any of the usual orthopedic (supportive) procedures. She was referred to the Gastrointestinal Division where a diagnosis of jejunal ulcer was made.

Conversely, lesions of the spine may cause abdominal or intra-abdominal symptoms because of mechanical irritation or inflammation of nerve roots as they emerge from the spinal canal. The reflex pain syndrome has been discussed by both Mayer and Pottenger and cases of this type have been reported by Carnett, Nielsen, Gunther and Kerr, Ussher and Wills and Atsatt.

Mixter has further emphasized the importance of evaluating all back pain in the light of possible intra-abdominal or pelvic lesions. He mentioned, from his own record, two gall-bladders, two appendices, one fibroid and one kidney which had become surgical specimens through error because of pain referred to the regions of the organs mentioned when the primary disease consisted of a tumor of the spinal cord.

Acute abdominal symptoms may follow a severe injury to the dorsal or lumbar spine with contusion or compression fracture of the vertebra. Case 4, is an example of this, in which a patient, age 63 years, was erroneously subjected to an extensive laparotomy operation due to snap diagnosis of ruptured viscera.

Case 4: Acute Abdominal Symptoms Secondary to Compression Fracture of the Spine: M. B., female, aged 63 years. This patient was thrown from the back seat to the top of a speeding car and down into the floor of the tonneau. On the day following the accident she developed marked distension of the abdomen and in another hospital a laparotomy was performed because of a tentative diagnosis of ruptured viscus. No injury to the abdominal contents was found at the operation.

Subsequent röentgenograms of the spine showed a central compression fracture of the eleventh thoracic and of the first lumbar vertebral bodies. This injury had caused a reflex paralytic ileus.

Case 5, is an example of a patient who was needlessly subjected to repeated and extensive abdominal and surgical assault.

Case 5: Appendectomy and Ovariectomy Because of Abdominal Pain Due to Extradural Cyst of the Spine: B. K., female, age 22, entered the University of Chicago Clinics on November 27, 1934, complaining of pain deep in the right lower abdominal quadrant, painful urination for one and one-half years, pain in the low-back, intermittent attacks of nausea and vomiting, and frequent headaches.

Because of the abdominal pain, her appendix and right ovary had been removed two years before coming to the University of Chicago Clinics. The symptoms were not relieved by this operation.

Our examinations included cystoscopic studies which revealed a cord type of bladder. There was slight evidence of atrophy in both lower extremities and the reflexes were suppressed, although present.

A röentgenographic examination showed congenital anomalies of the lumbosacral region, scoliosis, and lateral wedging of the lower lumbar vertebra.

A lumbosacral fusion operation was advised. When the posterior bony wall of the sacral canal was exposed, it was found to be paper-thin and when stripped away, a large bluish, fluid-filled sac bulged through the defect. This proved to be an extradural cyst which extended from the upper level of the fourth lumbar to the lower level of the third sacral vertebra. The sacral and lower lumbar canal was markedly widened throughout this region. The cyst was removed and the fusion operation was completed.

The pain, which we now believe to be secondary to the congenital anomalies of spine and spinal cord, with degenerative changes in the latter, has not been relieved.

SUMMARY

Our early errors in diagnoses and treatment of low-back pain resulted from lack of a fundamental knowledge of the architecture of the lumbosacral region, of the physiology and the function of the intervertebral disc, and of the pathologic changes which may take place in the disc (and subsequently in the vertebral bodies, and appendicular processes of the spine) as a result of acute trauma or the more gradual degeneration of age and the wear and tear of daily activity.

Errors of diagnosis may also be avoided if we keep in mind the fact that in many cases of abdominal pain caused by inflammation due to infection in the spine, as a result of chronic irritation from hypertrophic arthritis, the mechanical factor of impingement from osteophytes, or from displaced portions of intervertebral disc, pain is merely the response to irritation of the nerve roots. Unfortunately, the clinician may seek to alleviate the pain or to try to find the pathology causing the pain, only in the location to which the patient points and says that it "hurts." This attitude disregards the fact that pain is only a symptom manifested at the site of sensory nerve end organs. The stimulus which causes the pain in the abdomen when the disease is in the spine may be compared with the contact which is made when the doorbell button is pressed in an outer vestibule. The bell may ring within the house at a considerable distance. The sudden compression of the ulnar nerve at the elbow causes pain in the fourth and fifth fingers of the hand, most marked at the tips. Similarly, irritation of nerve roots within the spinal canal or as they emerge from the spinal canal, or irritation of nerve tracts within the spinal cord itself may cause peripheral symptoms characterized as intercostal neuralgia, sciatica, or intra-abdominal pain, depending upon the region of involvement of the spine or its contents.

Treatment should not be undertaken for patients whose primary complaint is either of abdominal pain or of backache, until the symptom complex of viscerospinal pain has

been considered. Thus our sins of omission, because of failure to recognize the possibility of referred pain, will be less numerous and we will commit less often the sin of commission through treating effects when it may be possible to remove the cause.

In the University of Chicago Clinics there have been only seven cases diagnosed as rupture of nucleus pulposus into the spinal canal. It is probable that in most of the patients who have had sciatic pain connected with a lesion of the intervertebral disc L5 to S1, a portion of the collapsed and narrowed disc did bulge posteriorly into the spinal canal, causing or increasing the pressure on nerve root L5. But it is our opinion that simply trimming off this bulging portion of intervertebral disc may weaken the disc and may lead to further narrowing. It has been our experience that the majority of these patients can be relieved by the manipulative procedure mentioned above, followed by a carefully outlined program of orthopedic care. When operative treatment does become necessary, arthrodesis of the lumbosacral spine, after manipulation and excision of articular facets L4 to 5 and L5 to S1 is the procedure of choice. (Table IV, section III).

CONCLUSIONS

1. The largest group of patients, whose entrance complaint in the University of Chicago Clinics was that of low-back pain, was found to have clinical or röentgenological evidence of changes in the intervertebral disc L5 to S1.

2. The predisposing factors to this discogenetic lesion are: chronic malposture; heavy physical labor over a long period of years, and congenital anomalies, including spondylolisthesis.

3. A correct diagnosis can be made and the lesion localized, if the history of low-back pain is accurate and the examination is carefully made.

4. Errors in diagnosis and treatment may result when the complaint is of backache while the lesion is visceral, or when the symptoms produced by a lesion in the spine are manifested by pain referred to the abdomen.

5. The vast majority of cases of low-back pain can be relieved and the patient restored to functional usefulness without operative interference.

6. Correction of bad body mechanics by physical therapy, including stretching of contracted fascia or muscles, exercises, and the use of a good spine brace over a period of time, will restore the average patient to a reasonable degree of normalcy.

7. Orthopedic operations for the relief of low-back pain should be performed only after diagnosis has been accurately established and osseous neoplasms, visceral, or neurological lesions have been excluded.

TRAINING IN OBSTETRICS

"A commendable development of the past two years provides practicing physicians in several regions with the opportunity to spend from one to four weeks in hospitals with active ward services in obstetrics," says an editorial in *The Journal of the American Medical Association* for February 18.

"In each the effort is cooperative. The hospital or medical school opens its teaching facilities to the profession; the respective state medical society's committee on maternal health arranges the graduate program and announces the course, and the respective state department of health lends financial aid, usually with funds provided under the Social Security Act. Such courses were successfully conducted at the University of Illinois College of Medicine, Chicago, during the summers of 1937 and 1938 and at the University of Nebraska College of Medicine, Omaha, in July, 1938 and were begun at the Indiana University School of Medicine, Indianapolis, in November, 1938. Recently through its committee on maternal welfare the Medical Society of New Jersey announced that any practicing physician of New Jersey may attend organized refresher courses given at the Margaret Hague Maternity Hospital in Jersey City.

"Each of these intensive intramural courses is designed in essentially the same way. Each is operated on a full one week or two weeks daily schedule with special classes for a limited number of physicians who are given ample opportunity to observe obstetrics as it is practiced under desirable hospital conditions."

THE CONTROL OF TUBERCULOSIS IN WEST VIRGINIA*

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If the battle against tuberculosis seems half won because the death rate among the general population has been cut in two, it may be well to temper complacency by recalling that the ground gained is that which is easiest to take. The part still to be done may be far more difficult than what has already been achieved. We have been making headway along lines which are fairly obvious.

The disease is prone to strike down young adults who are just at the beginning of their life's work. With health, these young people are self-supporting and can look forward to useful and happy lives. When tuberculosis develops, the home is broken up, ambitions are shattered, savings are rapidly used, dependency is forced upon those to whom it is disagreeable, and in place of a life of activity, the young man or woman has to look forward to a long period of invalidism with even worse possibilities. Much of this is preventable and the spread of knowledge about tuberculosis has done a great deal to lessen its dire results and to awaken the public to a realization of what it means to the state and to the individual.

When a preventable disease which stands seventh as a death factor among the population as a whole remains first among those at the most useful and productive period of life, the problem cannot be considered half solved from any rational viewpoint whatsoever.

That sick people ought to go to bed and stay there until they are well; that tuberculosis is spread through contact; that this contact should be broken; that early diagnosis is desirable—these and many other facts have found ready acceptance by the public. We must look further, we must concentrate on the person who will be sick ten to fifteen years hence. It is not so easy to get the general public to think ahead and help us achieve an end so far remote, but this is our problem without question. It is a serious arraignment of man's capacity to control his environment that he knows how to find more than half the tuberculosis cases of tomorrow among the children of today, and yet fails to find them. We must state and restate the fact that a condition in children only observable on the x-ray plate is often the precursor of adult tuberculosis.

As we move on toward complete extirpation of tuberculosis, more and more will it become our task to search out the source of any given case in some other person. In doing this we are sure to meet with opposition, but there is certainly no cause to be disheartened. We are not alone in grappling with the difficulties inherent in translating knowledge into conduct. A person who learned a few facts today needs a period of incubation before it becomes his own. Faster progress in tuberculosis work will come only with the proportionate increase of the energy we put into it.

In the past, our chief concern has been defense, protection, and escape. But in recent years our tactics have been more aggressive. We are boldly undertaking to search out tuberculosis in its many hiding places. Not content to wait until the disease strikes, we seek to anticipate it before serious harm is done. That is the reason numerous communities are now doing positive routine ex-

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aminations of school children, college students, and of the young groups. We have learned that the early case of tuberculosis in the adolescent is normally symptomless and will not be discovered in the early stage unless a deliberate and systematic hunt is made. The time interval between the appearance of the first symptom and diagnosis is the factor which influences prognosis probably more than anything else. One reason for the delay in diagnosis is, undoubtedly, to be found in the lethargy of the people coupled with the common human failing of not wishing to face unpleasant facts.

ADVANCED EDUCATION NECESSARY

The necessity of an advance educational program is obvious. An enlightened public interest by "education of the people, and through them, of the state, is the first and greatest need in the prevention of tuberculosis," as Edward Trudeau said at the first meeting of the National Tuberculosis Association in Washington, D. C., May 8, 1905. This statement by the first president of the Association has proved true over and over again through the years.

Every person can and should have a part in this campaign. Everyone is a member of some organization. Members of teachers' clubs, women's clubs, fraternal orders, church groups, parent-teacher associations, civic associations, business firms and other groups should urge their officers and fellow members to arrange a program featuring tuberculosis and its control. Our newspapers should and will print stories of such a campaign.

Among the modern weapons are the Mantoux test, x-ray and sputum investigation.

A postive tuberculin test, particularly in the period of childhood and adolescence, places before the investigating physician and nurse one of the knotty threads which help to make up the complicated fabric of life.

A positive tuberculin test warrants a thorough investigation if not a diagnosis of tuberculosis.

Infection with the tubercle bacillus causes a wide range of possibilities. The individual may never have obvious symptoms or demonstrable pathology. It may, in infants, lead to the development of one of the acute forms of tuberculosis, which, usually in a relatively short time, proves fatal, namely:

1. Generalized miliary tuberculosis.
2. Tuberculous meningitis.
3. Acute tuberculous pneumonia.

Now if the positive reactor reaches the age of three or four without manifest disease, we may reasonably anticipate that he will carry on through childhood without clinical manifestations of the disease. When he arrives at the age of puberty he again drifts into the danger zone and experiences an unaccountable susceptibility to active, progressive disease, either through endogenous or exogenous reinfection.

Suffice it to say that the individual with a positive tuberculin test faces all the possibilities inherent in the wide range of hematogenous clinicopathologic manifestations from the relatively inert primary complex, through mild, moderately severe, to overwhelming generalized tuberculosis.

SOURCE OF INFECTION

It follows, therefore, that an individual with a positive tuberculin test has other implications and places upon doctors and nurses other obligations. We must consider the probable source of infection. Infection means contact with the tubercle bacillus, and this, usually but not always, means intimate contact with someone who has open tuberculosis. Naturally, we turn to the home. A negative family history is of little importance. Everyone who may reside in the home should have a tuberculin test and an acceptable x-ray of the chest. If such a searching investigation fails to reveal the source of infection we must consider the possibility of contact with tuberculous teachers, neighbors or visiting friends and playmates. Finally, hand to mouth infection; for example, the baby who plays on the floor.

The child problem calls for management by the physician and nurse and it is not to be solved by hospitalization, but by wise supervision of the growing child, protecting him from reinfection, the overtaxing of his strength, and lowering of resistance by intercurrent disease. When we are able to remove the tuberculous adult from the home and place him under specialized care, we shall succeed in conquering tuberculosis.

X-RAY EXAMINATION

As regards the importance of a diagnostic x-ray examination of the chest, this has passed beyond the stage of merely furnishing confirmation for percussion and auscultation findings. There are, in fact, able defenders of the thesis that what the experienced eye sees on a diagnostic film is far more informing than what we can hear through a stethoscope. Well we know that early tuberculosis is something seen and not heard and if seen can be conquered.

The laboratory test most significant in the diagnosis of tuberculosis is the sputum examination. Not all cases found will be early, without symptoms and without sputum. The entire tuberculosis problem revolves around the tubercle bacillus and the demonstration of this organism in excreta is the only method of unequivocal value. All other tests belong in the field of presumptive evidence, and it seems incredible that a survey of tuberculous patients on admission to sanitariums shows that 55 per cent have not had a sputum examination.

In this connection it should always be remembered that no sputum can be said to be truly negative unless it has successfully run the gauntlet of microscope and culture or animal inoculation.

With what forces shall we advance?

We have the National Tuberculosis Association with its subdivisions, state sanitariums, county sanitariums, county health doctors and nurses, and last but not least, the family doctor. A united front with cooperation is mandatory. If I may, I want to emphasize the importance of the help and cooperation of the family physician. He is the spearhead of the attack by virtue of his location and the fact that he commands the respect of his clientele.

About 70 per cent of all tuberculous patients first see him. The records show that he has, from the very beginning of the fight, generously joined hands with all agencies in the control of tuberculosis. There may be a few, and at times, many that have not shown an extraordinary interest in tuberculosis. No one is surprised at this—the wonder is that he has not been even more disinterested. The management of a tuberculous individual is anything but stimulating or satisfying.

For a moment consider the cost and difficulty of making a precise diagnosis; the discouragment of finding the disease already advanced at the patient's first visit; the frequent exasperating disregard for the physician's advice or treatment. There are a relatively few rich tuberculous individuals and we all too well know that the usual economic status of the unfortunate tuberculous individual would not rate high on the "bread and butter" market. The inclination is to regard tuberculosis as something for institutional medicine to worry about, and while the family physicians have been unusually tolerant toward free diagnosis and treatment services, these privileges have been abused. Whatever the private practitioner's attitude toward tuberculosis may be, and however he may view the social developments growing therefrom, he is still the keystone of the arch.

FOLLOW-UP WORK

The second opportunity which the general practitioner can enlarge to his own benefit as well as the patient's is sound and more thorough contact follow-up work. Every doctor now knows that a diagnosis of tuberculosis, no matter how precise, is incomplete if limited to the single patient. Tuberculosis is a household epidemic, the patient before you is but one factor. The doctor should not forget the slogan, "From whom did he get it, to whom has he given it?"

The control of tuberculosis as a movement is not as some would have us believe, a lay enterprise; nor as others think, a medical activity, but an instrument of democracy.

The health associations are the voice of the people in matters pertaining to health, and this voice seeks the guidance of the medical profession.

HOW SHALL WE PURSUE?

Since it is not yet possible to examine every member of the population, it is desirable to select groups of people who are accessible for examination and in whom tuberculosis is likely to be prevalent.

Contacts can be divided into two broad groups—school and household. Moreover, a more intimate consideration of the problem of tuberculosis among industrial groups is warranted.

Direct case finding by units making a survey among school children by means of the Mantoux and x-ray examination of the positive reactors readily lends itself as an approach. Here are present one or more members of a high percentage of families, and tuberculosis is decidedly a familial disease. In school the children are assembled systematically, and orderly controlled. Much, therefore, can be accomplished at a minimum in cost and energy. A follow-up x-ray and examination of the contacts of the school child in an attempt to find the source of infection is urgent. The follow-up can be conducted by the public health nursing service and the private physician. If this (the follow-up) is not done, a survey is largely a loss of time and effort. If contact is not broken, very little can be accomplished.

School employees should not escape an investigation. Where this has been done, 50 per cent were Mantoux positives, and in groups of 200 or more, one per cent have shown active clinical tuberculosis.

Household contacts are the chief source of infection and it is interesting to note that not more than 50 per cent of suspected individuals or parents will arrange for examination.

Industrialists could contribute to the control of tuberculosis by requesting a survey among employees. This field would uncover many of the unsuspecting cases that, in part, account for the cases who do not know their contact.

It would be quite remiss, if in this connection, I failed to mention the achievements of our American veterinarians in the control of bovine tuberculosis. By Mantoux testing herds and killing of infected animals, the incidence has been reduced from 50 per cent to less than one per cent. Likewise, as a result of this program, we note a very appreciable reduction of the bovine strain in humans. The manifestation of this strain is seldom seen except in those sections where cattle testing has not been done. Results of veterinarians have been very positive since they kill the offenders, whereas with the humans, we can only try to isolate and treat them.

REHABILITATION

Another factor in the control of tuberculosis is rehabilitation. Since most of our patients are trained to do manual labor, and will not be equal to former employment, this phase of control merits thorough study and painstaking effort. Nothing of value can be realized until more and better facilities for education and training are given conspicuous places in a tuberculosis program of our state.

We have hospitalized in West Virginia state and county sanitariums, about 750 patients and added to this 300 on the waiting lists, giving us a total of 1050 known infectious cases. Would it not be a good place to start from this list of patients recorded at the sanitariums and work back on a survey into this field? Since we have the location and range, it is obvious a direct positive strike could be made. Our health department and nurses could supply most valuable information.

Upon completion of a local or general survey, the issue squarely before us is isolation and treatment of the open cases found. At the present time, our state, county, and private institutions do not have space for the

now known cases. Isolation is the integral factor and we fear will remain so for a number of years.

When we consider the number of patients, the months that pass awaiting admission, the slow turnover, (slow because tuberculosis is a disease in which time is a great factor in recovery), little wonder it is that 90 per cent of our patients are in the advanced stages upon admission. One of the greatest defects of the present program of tuberculosis control is that in most instances, the program does not begin to operate until the patient has tuberculosis in the advanced stages. Just as long as this situation exists, our control will not be satisfactory. Treatment has little to offer (in advanced cases) and our sanitariums will have to justify their existence on the basis of isolation care and not in the form of recovered and cured cases. Too many physicians and others engaged in tuberculosis work appear to be willing to rest upon the laurels won in the splendid program developments of 20 or 30 years ago.

The qualitative aspect of the service rendered in tuberculosis institutions is fundamentally as important as the quantitive. To some degree, facilities for the care of tuberculous cases tend by nature to become static, whereas the scientific needs are dynamic and change constantly. The application of modern methods of study, diagnosis and treatment demand more from the standpoint of scientific equipment, nursing, and medical personnel than formerly.

ADDITIONAL BEDS NEEDED

The treatment has been transformed from a policy of passive expectancy to one of active patient assistance.

Last year there were reported 1005 deaths from tuberculosis in West Virginia. So, on the basis of two beds for each death—an accepted working ratio for the moment and fairly satisfactory—we need space and furnishings for 1000 additional patients. To supply this, the cost per bed to the state and federal fiscal bodies is about $3,500 or an estimated capital expenditure of $3,500,000, and an additional cost of $750 per patient per year for maintenance to satisfy their many demands. Or shall we in the face of this situation, for a time at least, turn to isolation in the home and when possible, to county and private sanitariums and general hospitals and seek financial aid for a feasible program here? Without financial aid to the family and patient we can only hope for mediocre results. It would seem futile to expect further developments of facilities to meet our present and future needs unless there becomes available a promotion program, objective in vision, economic in purpose, and positive in conduct.

PAIN IN APPENDICITIS

Decrease of pain in appendicitis may indicate that the patient is actually worse instead of better, warns Louis M. Leibow, M.D., New York, in *Hygeia, The Health Magazine* for March.

"Primary pain may subside if the appendix becomes gangrenous or ruptures," Dr. Leibow says. "Thus the patient may hesitate in calling his doctor, believing that he is better when he is really worse.

"Appendicitis which subsides may at any time recur and the life of the patient is in constant danger. Such a patient is much safer with his appendix removed."

The first definite symptom of acute appendicitis is severe colicky pain about the navel and right side of the abdomen. Symptoms which precede this and should serve as a warning include nausea, indigestion, vomiting, loss of appetite, flatulence, a sense of heaviness and soreness and tenderness over the lower right side.

Fever follows the primary pain but it may vary in height; in some cases the temperature may fall to normal again even though the case is severe.

"There is no medical treatment for appendicitis," Dr. Leibow maintains. "The use of any physic, no matter how mild, may tend to rupture the acutely inflamed appendix and thus lead to dangerous complications."

Other conditions which may be mistaken for appendicitis are typhoid; tuberculous abscess of the loin, groin or right hip; perforation of a stomach ulcer; lead colic; acute pancreatitis; hysteria and appendicular hypochondriasis (morbid anxiety about appendicitis).

THE PREVENTION AND MODIFICATION OF MEASLES *

By FRANK J. HOLROYD, M. D.
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WHILE the morbidity of tuberculosis, diphtheria, and enteric infections has decreased remarkably in the last few years the morbidity of other communicable diseases, including measles, has remained unchanged. The danger from measles *per se* is very slight, but secondary infections such as bronchopneumonia, mastoiditis, tuberculosis, enteritis, noma and encephalitis may prove fatal.

Measles is most dangerous between the ages of one and four years, particularly if complicated by other diseases or by malnutrition. Children of these ages and with these complications should be protected against measles. The protection of well children by isolation of sick children has proven ineffectual. Attempts to isolate and cultivate the virus of measles have met with discouraging results, though DiCristina[1] and Caronia[2] have isolated and cultured a filterable micrococcus which they claim is the etiologic factor of measles. They have reproduced the disease, developed a specific skin test and immunized animals with it. Tunnicliff[3] has repeated this work with a different organism. Sindoni[4] claimed Caronia's micrococcus causes measles. Noble and Schorberger[5] have been able to prevent measles with Caronia's vaccine, but claimed for it a nonspecific immunity. Schick[6] was unable to prevent measles in exposed children with sodium nucleinate, though he got the typical nonspecific protein reaction. Surprisingly small amounts of blood from patients ill with measles will on subcutaneous injections into normal children induce measles.[7]

Herman[8] in 1915 attempted to produce active immunity in infants under five months of age by inoculating them intranasally with secretions from patients acutely ill with measles. This was not deemed practical nor safe by Blake and Treask,[9] McKhann[10] and others.

No ill effects have been reported from the use of convalescent serum. The first successful immunization against measles by means of convalescent serum was carried out by Maggiore[11] in 1915 and Nicolle and Consil[12] in 1916. Reports of numerous successful immunizations have appeared subsequently by Richardson and Connor,[13] Degwitz,[14] Torres and Pecheco,[15] Manchot and Rieche,[16] von Torday,[17] McNeal,[18] DeJong and Bernard,[19] Zingher[20] and others. The dosage of convalescent protection varies with different authors—Debre[54] gives three cc. to children under three years, three to six cc. to children three to ten years old and eight cc. to children over ten years. Sinclair and Avery[55] give four cc. to younger children, eight cc. to older children and 10 cc. to adults. Park[56] gives five cc. to younger children and 10 cc. to older ones. Gunn[57] gives five cc. to children under three years and twice as many cc. for each year over three years. Joannon[58] gives one cc. for each year of age with minimum of three cc. and maximum of 15 cc. Silverman[59] gives the same dosage as Joannon except his maximum is 20 cc.

Rietschel[27] and Degwitz[28] in 1920 and Karelitz[26] in 1925 used whole blood of adults who had had measles. They concluded the amount necessary and the marked variation in the antibody content prohibited its use.

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The demonstration of the transmission of various antibodies through the placenta and umbilical cord from mother to child led to the concept that extracts might be prepared which would protect children against various diseases. The placental transmission of diphtheria antitoxin in women was demonstrated by Fischland and Wunscheim,[27] Polano[28] and others.

UMBILICAL CORD AND MATERNAL BLOOD

Titrations of umbilical cord blood and maternal blood made by von Groer and Kassovitz[29] demonstrated that the content of diphtheria antitoxin of the maternal blood and that of the cord blood were usually identical. The presence of antitoxin in equivalent amounts in maternal and fetal blood was confirmed by Kutter and Ratner.[30]

The presence in the cord blood of the antitoxin substances to scarlet fever was demonstrated by Toomey and Autus[31] and Paunz and Csoma.[32] The neutralization of poliomyelitis virus by umbilical cord blood has been demonstrated by Aycock and Kramer.[33]

The presence of measles immune bodies in the blood of the umbilical cord has been demonstrated by Fenkelstein,[34] Jorge[35] and de Souza.[36] McKhann[10] found that the placenta contained immune bodies which would neutralize diphtheria toxin, blanche scarlet fever rashes, neutralize poliomyelitis virus and prevent measles in exposed, susceptible patients. Ross[37] found that placental extract was able to produce in the majority of 15 cases, rapid reduction in the susceptibility to scarlet fever by changing a positive to a negative Dick test. Sakurai[38] showed that placental extract compares in coagulative effect to the tissues prepared by Woolridge[39] and Mills.[40] McKhann also found it contained an active antistrepolysin.[10]

Injections of placental extract have been found not to sensitize to subsequent injections of placental extract. This is in accord with the work of Nattan-Larrier and Grimard-Richard[41] that fetal serum has no sensitizing action on adults of the same species.

IMMUNIZATION WITH IMMUNE GLOBULIN

1. Potency: Placental extracts are parallel to convalescent serum in potency. McKhann,[10] Green, Eckles, Davis and others[50] compared the results of patients treated for the prevention or modification of measles with adult serum, convalescent serum, and placental extract. Their combined findings are as follows: Adult serum, 584 cases, 56.4 per cent protected, 23.8 per cent modified and 19.8 per cent failed. Convalescent serum, 1627 cases, 75.4 per cent protected, 16.8 per cent modified and 7.8 per cent failed. Placental extract, 1341 cases, 71.9 per cent protected, 23.9 modified and 4.6 per cent failed. Placental extracts have the advantages of more adequate supply. The fluid obtained by cutting up and squeezing a placenta has the same diphtheria antitoxic titre as the serum obtained from the blood of the corresponding woman during the last stage of labor.[26 42 43]

2. Dosage: Karelitz[26] compared the diphtheria antitoxin titre of placenta extract with that of adult serum, the measles protective dose of which is established. He found that globulin solution usually contained twice the amount of diphtheria antitoxin as adult serum and so he used one-half the amount of immune globulin (placental extract). His hypothesis is that the measles prophylactic value of that amount of placental extract which contains one unit of diphtheria antitoxin should be equal in measles prophylactic value.

The dosage of immune globulin was originally: Levites[44] two cc., McKhann[10] and Robinson[52] suggest four to six cc., Eley,[45] two to six cc., while Huber[46] and Maeller[47] use 10 to 20 cc. Karelitz[26] was unable to get results using less than four cc. The only direct method of determining the dosage of placental extract has proved to be to test each lot for its ability to prevent measles.[26]

THE TIME OF ADMINISTRATION

If immune globulin (placental extract) is given within five days after exposure it usually prevents measles; if from sixth to ninth day the measles is modified. From the tenth day of exposure through the preeruptive stage there is diminishing effect and after the

eruption there is no effect. The ideal time of administration is on the eighth day after exposure. If no measles develops after the administration of the serum the immunity lasts only a few weeks, whereas, if the typical disease develops, the individual is rendered permanently immune. Somewhere between the state of no symptoms and the typical disease lies a stage of enough illness not to endanger the life of the patient, yet to render the child permanently immune.[48] Eley, Schick and Karelitz[26] have found that children exposed intimately at home require larger doses than children casually exposed, and that children in homes with poor hygiene require larger doses than children in homes with better hygiene. Levitas,[44] Schick,[6] Lanning and Horan,[53] Robinson and McKhann,[10] and McGraven[49] have concluded that hospital exposures are not adequate for the study of the value of a measles prophylactic substance. The results of various authors with the use of immune globulin in the prevention and modification of measles are as follows: McGraven[51] in 77 cases administering three to five cc. on four to nine days, reports no effect in four cases (five per cent), modification in 42 cases (55 per cent) and prevention in 31 cases (40 per cent). Lanning and Horan[53] in 93 cases modified measles in 70 cases (75 per cent) and prevented it in 23 (25 per cent). Huber by administering 10 to 20 cc. as soon as possible after exposure to 37 cases was able to prevent measles in them all. Levitas[44] administered two cc. to 18 cases and modified measles in 15 cases (83%). Moeller[47] administered 10 to 20 cc. to 44 cases on the five to seven days, and prevented measles in 35 cases (80 per cent). The same author administered 10 to 15 cc. on the second day to 47 cases and prevented measles in 46 (97 per cent). Robinson[52] gave two to eight cc. on five to seven days to 1628 cases with no effect in 73 cases (4.5 per cent), modification in 417 cases (25.6 per cent), and prevention in 1138 cases (69.9 per cent). McKhann[10] in 2740 cases, reports no effect in 144 cases (5.3 per cent), modification in 833 cases (30.4 per cent), and prevention in 1762 (64.3 per cent). Morales and Mandry administered 10 cc. on five to seven days to 138 cases with no effect in 28 cases (20 per cent), modification in 55 cases (40 per cent) and prevention in 55 cases (40 per cent). Karelitz and Schick[26] administered 10 cc. to 70 cases on five to seven days with no effect in 12 cases (17 per cent), modification in 29 cases (41 per cent) and prevention in 29 cases (42 per cent). The same author administered three cc. to 74 cases on five to seven days, with no effect in 15 cases (20 per cent), modification in 31 cases (42 per cent) and prevention in 28 cases (38 per cent).

Although numerous reports of the use of immune globulin have appeared in the literature, no author has shown just what happens when it is given. The statement "modify" is rather indefinite so the author decided to find out just what effect it has when used. A small series of 57 cases, 26 with immune globulin, and 31 as controls were used. The results of this study are summarized in Table I.

TABLE I

Results of Use of Immune Globulin in Home
Four cc. Given on Eighth Day of Exposure

	Given Placental Extract	Control
No. of Patients	26	31
Average Age—Years	5.9	7.2
Average Incubation	10.4 days	16.1 days
Average Weight Loss—lbs.	4	3.6
Average Highest Temperature	100.2	103.2
Average No. of Days with Temp. Above 99	2.1	4.4
Cough	Slight	Moderate
Anorexia	Absent	Marked
Enlarged Lymph Glands	Slight	Moderate
Itching of Skin	Moderate	Moderate
Albuminuria	(1) 3%	(6) 19%
Catarrhal Symptoms	Slight	Marked
Complications (Otitis Media)	None	12%
Mortality	None	None
Koplik. Spots	(18) 69%	31 100%

REACTIONS

Reactions from convalescent serum are very slight. When adult immune whole blood is administered in amounts adequate to obtain therapeutic results, an area of tenderness, edema and discoloration not infrequently develops at the site of the injections.

Local and systemic reactions have resulted following the intramuscular administration

of placental extract. McKhann, Green, Eckles and Davis in 1232 cases reported mild local reactions in 312 cases (25.3 per cent), severe local reactions in 49 cases (four per cent), mild febrile reactions in 182 cases (14.8 per cent) and severe (temperature above 101 degrees F.) in 31 cases (2.5 per cent). Robinson[52] in 1533 cases reported no reaction in 961 cases (62.7 per cent), mild local reactions in 485 cases (31.6 per cent), severe local reaction in 65 cases (4.2 per cent), severe febrile reactions (temperature above 101 degrees F.) in 39 cases (2.5 per cent). Eley[45] in 2133 cases reported no reaction in 1249 cases (58.5 per cent), mild local reactions in 761 cases (30.9 per cent), severe local reactions in 100 cases (4.7 per cent), mild febrile reactions in 301 cases (14.1 per cent) and no severe febrile reactions. McKhann[10] in 2896 cases reported no reactions in 1659 cases (57 per cent), mild local reactions in 1058 cases (36.7 per cent), severe local reactions in 142 cases (4.9 per cent), mild febrile reactions in 578 cases (19.9 per cent) and severe febrile reactions (temperature above 101 degrees F.) in 86 cases (2.9 per cent). Karelitz[26] in 64 cases reported no reaction in 30 cases (47 per cent), mild local reactions in 21 cases (32 per cent), severe local reactions in five cases (seven per cent) and severe febrile reactions (temperature above 101 degrees F.) in eight cases (13 per cent). McGravan[51] in 51 cases reported "reactions negligible." Combining these reports we find in 7935 reported cases no reactions in 3003 cases (41 per cent), mild local reactions in 2637 cases (32 per cent), severe local reactions in 361 cases (4.5 per cent), mild febrile reactions in 1250 cases (16 per cent), and severe febrile reactions in 164 cases (2.5 per cent). From these statistics it would appear that neither the frequency nor the severity of the reactions is sufficient to contraindicate the use of the material as a prophylactic measure in the control of a disease as serious as measles.

Because of the desirability of avoiding the occasional severe reaction, oral administration has been tried. Bovine lung tissue protein and human placental tissue extracts have been shown to be active in shortening the coagulation time of the blood following oral administration despite the susceptibility of these extracts to destruction by gastric and intestinal secretions.

The immunizing effect of placental extract by oral administration has been studied by observing the effect of oral ingestion of the extract on the Dick test of patients susceptible to scarlet fever and the effect of the extract in the prevention and modification of measles in nonimmune children intimately exposed to the disease.

In a series of tests, McKhann[10] administered placental extract in total amounts ranging from nine to twenty cc., varying somewhat with size and age of child, in several doses of two to five cc., each in ice cold water on empty stomach at least one hour before meals, according to the technique described by Mills for the absorption of the blood coagulant derived from lung tissue. In no instance was there a failure of the effect of the material, as in each instance a reversal of the Dick reaction was obtained.

McKhann[10] says: "There can be no doubt that placental extract by mouth has some effect in the prophylaxis of measles. However, the results are much less striking than those obtained by intramuscular injection of the material. The dosages used by mouth have been from two to three times those used for intramuscular injection." McGravan,[51] Robinson,[52] and McKhann[10] in 125 cases were able to modify measles in 75 per cent of their cases. Other authors have been unable to get these results.

USE IN TREATMENT

Levitas[44] gave two cc. of immune globulin in prodromal stage or after the rash appeared in 28 cases and reports excellent results in 25 cases. He stated that the cough was markedly influenced by use of this agent. Karelitz[26] was unable to see any result using as much as 10 cc.

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SULFANILAMIDE TREATMENT OF UNDULANT FEVER*

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BRUCELLA INFECTIONS due to Brucella abortus are rare in infancy and comparatively rare in childhood in this country. Brucelliasis is predominantly a disease of adult life, the greatest number of cases occurring between the ages of twenty and forty-five. The average duration of the disease is about four to six months.[1]

Three cases treated successfully with sulfanilamide have been reported by Stern and Blake.[2] The youngest of this series, however, was 24 years of age. Toone and Jenkins also report one adult case successfully treated with this drug.[3]

Brucella melitensis, formerly designated as micrococcus melitensis, is pleomorphic. However, it has been recently claimed by Duncan that isolated melitensis strains are characteristically coccoid when grown on special media. On this basis sulfanilamide was employed in the treatment of the following case:

On February 22, 1938, J. B., a six year old white male was admitted to the Beckley Hospital complaining of anorexia, fever and vague pains in the extremities. The following history was obtained. The family had been using raw milk for several months, and one week before admission the patient complained of fever, and slight headache with epistaxis on two occasions. The fever was intermittent and occasionally accompanied by chills. He was symptom free one day during this period and went to school. The patient was seen in the home once before admission to the hospital and the only positive physical findings were a fever of 100 degrees and a palpable spleen. Physical examination on the day of hospitalization revealed a pale, male child, weight 46 pounds, with a fever of 100.6. The rest of the physical findings were negative except for a palpable spleen.

Laboratory data disclosed a leukocyte count of 5,600; polys 39 per cent; lymphocytes 60 per cent, and eosinophiles one per cent. Erythrocytes were 4,200,000, hemoglobin 82 per cent. The urine was essentially normal. A spinal tap revealed a normal count and negative culture. An x-ray of the chest showed slight haziness in the inner and middle zones of the right apex together with increase of the linear markings in this area. Tuberculin test was negative. Stool examination revealed no parasites. The Widal was negative for bacillus typhosus and also for paratyphoid A and B. A diagnosis of un-

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dulant fever was made on the basis of the above mentioned findings and a positive agglutination test for brucella melitensis in a dilution of 1:640.

After the diagnosis was made the patient was confined to bed at home. During the first fourteen days his temperature curve varied from 99.8 to 104.2 degrees. His complaints consisted principally of bizarre pains in the legs, occasional chills, anorexia and weakness. During this period the treatment consisted of a regular diet with six hematinic plastules a day with liver and yeast to combat secondary anemia. The leukocyte count remained around 5,000, while his hemaglobin rose to 95 per cent and the red cell count to 4,500,000.

On the fourteenth day sulfanilamide therapy was started with the following doses: First day, 60 grains; second day, 40 grains; third day, 30 grains; fourth day, 20 grains, and 15 grains a day for the next ten days. Each dose of sulfanilamide was preceded by ten grains of sodium bicarbonate. Sulfanilamide was given first on Friday evening when the patient's temperature was 100.4. His temperature went to 101 degrees the following day, but by Sunday morning it had dropped to 98.6, and at no time during the following three weeks of convalescence did his temperature go above a maximum of 99.2 (Fig. 1).

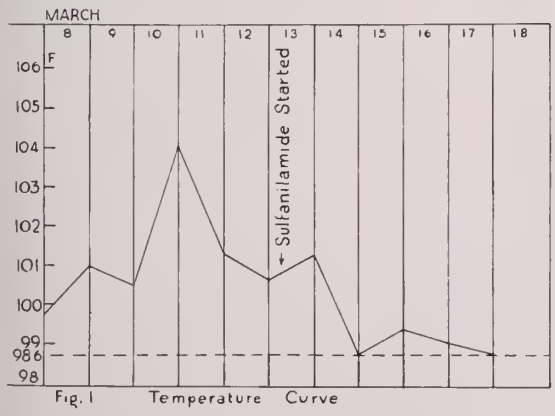

Fig. 1 Temperature Curve

Recovery was rapid. He complained of no subjective symptoms, ate with a ravenous appetite, and was permitted to get up on the twenty-first day following the first day of normal temperature, making a total of five weeks of bed rest.

Two months after the diagnosis of undulant fever had been made a second agglutination test was positive for Brucella melitensis in a dilution of 1:10.

There appeared to be no after effects of the illness except for a slight weakness of the legs and this complaint was easily managed by advising very moderate and light exercise with gradual return to normal activity.

CONCLUSION

One patient, six years of age with undulant fever was treated with sulfanilamide in tablet form with prompt clinical cure of the disease during the use of the drug.

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PRIMARY TUBERCULOSIS

Primary tuberculosis of the uterine cervix is rare but it does exist and in its appearance often resembles cancer of this organ, Donald C. Collins, M.D., Los Angeles, states in *The Journal of the American Medical Association* for February 18.

This resemblance is unfortunate, the author says, because many patients with tuberculosis of the cervix can be restored to full health. Inoculation of guinea pigs with material obtained from the infected cervix may prove to be the only reliable method of diagnosing the condition.

Marriage and pregnancy are the two common factors that contribute to the possibility of this infection.

The treatment of the ailment consists of the removal of the cervix. The contraindications to surgical intervention are advanced local tuberculous lesions with extensive involvement of the neighboring bladder or rectum, extensive tuberculosis of the Fallopian tubes, secondary infection, the presence of active tuberculosis elsewhere in the body, diseases of the heart and blood vessels and senility. The ultimate outcome of this disease is dependent on the type of treatment employed and on whether active tuberculosis is present elsewhere in the body.

GOUT: AN ANCIENT WOLF IN MODERN SHEEP'S CLOTHING*

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GOUT is a disease shrouded in antiquity, yet perhaps more prevalent today than in the days when Sydenham wrote his classical description, and described the "series of fits of pain in the great toe, appearing in the dead of night," etc. I suppose every doctor has his favorite disease or syndrome, for which he is constantly on the lookout, and which, on him, exerts a peculiar and often unexplained fascination. Mine is this syndrome of gout. Frankly, I cannot tell you why it interests me so, although I believe it is because I feel that we are neglecting its diagnosis or confusing it with the newer, more stylish atrophic, infectious, hypertrophic or other more fashionable forms of arthritis.

There is a rather universal impression that gout is becoming an extinct disease. I quote Sir Thos. Clifford Abbott, "Although in the earlier days of my practice, it was common enough, a typical podagra is becoming less and less frequent, even to rarity." I note the words "typical podagra", and pause to ruminate and reflect. Yes, perhaps the classical description of late gout, "the toe and tophus syndrome" is less frequent. Yet if we consult the records of any large arthritic service, such as that of Hench of the Mayo Clinic, or Volini at Cook County, or many others, we will find the incidence quoted at from .5 to 2.0 per cent of all arthritic admissions. It is frankly stated that in many cases, the diagnosis has only been made in a small percentage of cases (12 out of 100 admissions on Hench's service), and therein I believe lies a great deal of the interest which this disease awakens in me.

Tonight I wish to present three cases of proven gout, which I have had the opportunity of seeing in less than two years of private practice. I have no doubt seen others and missed them, but I have, in addition, two more cases which I feel sure are true gout, but which are not presented tonight because of incomplete laboratory data. I thought it might be of interest, and perhaps arouse some discussion, to compute as near as possible what the probabilities are of any of us seeing cases of gout, year in and year out. Of course, the larger one's practice, the greater likelihood of opportunity. In some measure, of course, the type of patient, the character of one's practice, and the specialty will determine the percentage of diagnoses. Above all, the clinical awareness will increase one's percentage of correct diagnoses. Roughly then, from my office records and hospital cases, I have five cases of gout in 2500 patients—a percentage of .5 per cent. This should no doubt be higher, and perhaps will be as my diagnostic ability improves. We in private practice are naturally not as well equipped as are clinics to make exhaustive diagnostic studies, employing the laboratory and röentgen methods; yet we should consider ourselves clinically as well equipped, for we have our ears to elicit the story, our eyes to study the affected areas or look for tophi or bursitis, our hands to palpate and our minds to correlate. It is with these thoughts that I have prepared this informal presentation.

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*Read before the Parkersburg Academy of Medicine, May 5, 1938, with a fourth case added July, 1938.

It is the suspicion of gout, not the disease, which has disappeared. Awareness of gout should again have a place in the thought of American physicians. Suspicions often can be confirmed by discovery of the characteristics of gout. If these criteria are used, gout will assume its rightful incidence, and a group of patients who are suffering needlessly will be restored to a large measure of comfort and usefulness.

A NUTRITIONAL DISORDER

"What is gout?" Forty years ago (in 1892), Osler defined gout as "a nutritional disorder associated with an excess formation of uric acid." Present day definitions and studies have made this position untenable. For a detailed discussion of the chemistry involved, I refer you to the papers of Wilder, Pratt, and Watson, (398-399-400; Annals of Internal Medicine, 1935) and others in the yearly reviews of the Committee for Control of Rheumatism. Faulty purin metabolism, long regarded as the cause, may in effect be a result of gout. However, this has not been conclusively proved. It is really not in the province of a clinical paper of this type to discuss either the physiology or complicated chemistry of the disease, so with your permission, I shall pass over that phase.

Text-books have overemphasized the "great toe syndrome." The widely taught and familiar features are stated as podagra (painful toe), elevation of blood uric acid, x-ray evidence of erosion, and presence of tophi. The text-books, as mentioned, give you the idea that the painful great toe and tophus occur within a short time; that the elevation of blood uric acid is a constant finding, and that by merely x-raying a joint will show early röentgenologic changes that are pathognomonic. In refutation of this erroneous concept, Hench of the Mayo Clinic reviewed several hundred cases of gout and found that on an average, fifteen years elapsed between the first attack of gout and the correct diagnosis.

Gout may be divided into two forms: First, the pretophaceous phase, and second, the tophaceous phase. It is well to remember that gout and gouty arthritis are not synonymous. Gout may exist for years before the gouty arthritis develops. It is characteristic of gout to appear dramatically, usually in a male over forty years, and by no means in hearty, hefty meat eaters, who wine and dine frequently and often, if not wisely and well. It often appears in vegetarians, teetotalers, ministers and ascetics. The attacks usually last seven to twelve days, to disappear fairly rapidly, and with no residual joint changes. Hench calls this State I, or acute recurrent gouty arthritis with complete remission. There is a transient hyperuricemia; tophi are absent; x-rays of joints negative. The appearance of the involved joint (60 per cent great toe, 40 per cent in other joints, such as the heel, ankle, knee or hand) is hot and bluish red with shiny skin and extreme tenderness over the mesial aspect, not on the top or inferior side. The affection is usually monarticular; the tendency is for recurrence; the attacks last longer, and may increase in severity, and after an average of twelve years the joints begin to show residual damage. This is called Stage II, or chronic gouty arthritis with acute episodes, but incomplete remissions. Here we find a constantly elevated blood uric acid (in 50 per cent of cases) and in a large percentage of cases the presence of tophi, demonstrable röentgen changes, deformity of joints and a chronic arthritis. It must be remembered that tophi are the one pathologic proof of gout, and every fibrous nodule or Heberden's node is not a tophus until we demonstrate urate crystals. The murexide test gives confirmation and a recent histopathologic method by Galantha may be done. Tophi may ulcerate, and a useful maxim is: In any discharging sinus near a joint, suspect tuberculosis or gout, and since gouty arthritis is much more common than tuberculous arthritis, often this will give us the diagnostic green light.

DISTORTED JOINTS

Late in the course of gout, the fourth phase of Hench, the joints become permanently distorted, but are painless; the x-ray will show

erosion of bone by urate crystals (most often in the hands or feet), and multiple tophi are present. It is fairly common to see exfoliative dermatitis about affected joints, with sinus, ulceration, and discharge.

Gout is rare in females. Males are affected in 98 per cent of cases. In a male with acute arthritis, if gonorrhea and trauma are excluded, and if he is over 35 years of age, gout is the most tenable diagnosis. The majority of acute attacks occur in spring and fall; often are precipitated by dietary excesses. They often occur after a hunting or fishing trip, and may appear to vex the surgeon five or six days following some operative procedure. Treatment of other disease, such as liver extract for pernicious anemia, in diabetics after institution of insulin therapy; after salyrgan administration; following migraine treatment with ergotamine tartarate; or after ketogenesis is induced, may precipitate a gouty episode. Hench makes a pertinent observation on the frequency with which gout appears in polycythemia and leukemia. Bursitis, especially over the olecranon region, is frequent, and the frequency with which renal lithiasis is associated with gout is striking. I wish to state here that gout should be suspected in any case of chronic arthritis with history or finding of renal stone.

CASE REPORTS

Case 1: Illustrating a pretophaceous gout with exacerbations of acute gouty arthritis and consistent hyperuricemia, but without residual joint deformity.

This man, age 51, a married salesman with two children, was first seen at his home with what he described as the "flu sore throat." He stated that two days previously he had experienced a chill, followed by a fever, and sore throat, and had noted pain in the left great toe, the pain appearing suddenly, and the toe had become red, hot and swollen. He went to bed, and after home remedies had failed, sought medical attention, because fever and marked sore throat persisted. The left great toe was consistently painful and he volunteered this statement: "Doctor, that toe is not sore when I press on top, but hurts like 'h—' when I press on the inside." That remark, I believe, made the diagnosis for me.

EXAMINATION

Physical examination revealed a sick-looking, six-foot-two male, lying in bed with the covers off his left foot. The temperature was 102.4 degrees; pulse 80; respirations 16. The skin was flushed and moist, and there was marked dysphagia. The conjunctiva were reddened, otherwise the eye examination was negative. The nose was crusted, and the teeth moderately carious. There was a definite fetor oris, and both tonsils were greatly enlarged, exuding frank pus, with edema of the uvala and pillars, and a deeply red pharyngeal mucosa. Both preauricular and postauricular chains of lymph nodes were enlarged; there was no general adenopathy. Chest and cardiovascular systems were not remarkable, and the abdomen revealed no splenomegaly or other pathology. On examining the left great toe I was struck with its shiny, reddish violet hue. It was swollen moderately and pressure on the mesial aspect earned me a few vitrolic expressions. No other joints were visibly or palpably involved, but on thumping the spine with closed fist, the patient complained of pain over the upper dorsal spine, and remarked, "That makes pain in both my arms, just like I have when I walk or carry sample cases." I then questioned him more closely, to find that he had previously been suspected of "heart trouble" because of the history of pain in upper chest and arms on exertion. Making a mental note in regard to future study by exercise tests and electrocardiography, I went on searching for tophi, bursitis, or fibrous nodules, but could find none.

Obviously, in a man as miserable as he was, with every likelihood of a peritonsillar abscess developing, I did not pursue further clinical investigation just then, though I did ask him if he had ever had "arthritis" before. He stated that for the last ten years, he had had episodes of swelling and redness of his left ankle, unassociated with trauma, coming and

going in a few days, always diagnosed as a "sprain", "an arthritis", or as "nothing to worry about." Refreshing his memory with nonleading queries, I elicited the fact that several attacks had followed trips for fishing and its attendant indulgences, and one episode had definitely occurred after a celebration with friends over a promotion. I then directed my attack to the throat, and after a few days, the acute tonsillar infection abated and the temperature became normal. Symptomatically he was well, except for that painful, red, tender and troublesome great toe.

DIAGNOSIS OF GOUT

At this point, I told him I suspected gout, but that, in view of the obvious foci in the throat, we could not exclude an acute metastatic infectious process. He agreed to further investigation and on February 6, a blood uric acid was done and reported by Dr. Matthews as 8.3 mg. per 100 c.c. The urinary uric acid was 26 mg. contrasted to an average normal of 50 mg. On February 7, I noted several small, red and elevated nodules along the anterior tibia in its middle third—very much suggestive of "erythema nodosum." The patient said they were tender and felt hot. He would not consent to biopsy, however. Feeling by now fairly elated at my apparently correct diagnosis, I prescribed wine of colchicum in doses of one teaspoonful every three hours, a high fluid intake, rest of the part with the empirical use of methyl salicylate ointment, cotton batting and heat. I outlined a low purine diet and awaited results. None were forthcoming in four days. "Why," I thought, "the text-books say it works like a charm; will it not work here?" Apparently either the books were wrong, or the preparation impotent, and on checking with the pharmacist I found that they had had the wine on their shelves for some months. Then, switching to colchicine gr. 1/100 three times a day until diarrhea supervened, in three days there was a marked reduction in the pain of the toe, and the patient became ambulatory in ten days. As soon as the man was able to get about, x-rays of the left great toe were taken, and we also rayed the cervical and thoracic spine. Note that while the bones of the great toe showed no röentgen evidence of gout, there is a marked hypertrophic arthritis of the lower cervical and upper thoracic spine. I believe this is a gouty change, and its presence explains the painful back and suggestive "anginal" history. In further support of this hypothesis, a complete clinical check, including blood Wassermann and Kahn, further urine studies, exercise tolerance tests, and electrocardiography have been negative.

The subsequent course under treatment has been quite satisfactory. The left great toe is practically normal; though still somewhat painful on deep pressure, and the skin is still dusky and shiny. Treatment has consisted of rest for the part for six weeks, a diet low in purine foods such as liver, kidneys, sweet breads, tongue, turkey, fish of all kinds, mutton, pork, veal, and wild game. Liberal quantities of fluids, supplemented by orange and other fruit juices are advised; cocoa and chocolate avoided; colchicine in gr. 1/50 doses three times a day for seven days, with a rest period of three days, repeating as necessary, has sufficed to keep his symptoms quiescent, although the blood uric acid readings have all been above 8.0 mg. per 100 c.c. of blood. Some men use neocincophen either alone or in combination with aspirin or other coal tar analgesics. All alcohol is interdicted as are dietary debauches and overwork. I have advised him not to work for another month, to perform exercises prescribed for cervical arthritis, and to be very careful of his diet at all times; to avoid known precipitating factors and to have his tonsils removed and his teeth carefully gone over.

PROGNOSIS

The prognosis is a matter of conjecture. Will he have to take colchicine regularly? Many cases can be controlled by diet alone; I hope this is one of them. (I saw this man today, and the next progress note I make is, "He ran up stairs!")

Case 2: Illustrating a case of long standing but pretophaceous gout, with hyperuricemia, x-ray changes, and chronic gouty arthritis with residual joint deformity.

This man, a 60 year old pharmacist, was seen in consultation for "high blood pressure" and "trouble with painful swollen ankles." He stated that two months previously he had noted pain in the right ankle with swelling, and tenderness on pressure over the heel. The pain was worse when he was on his feet, and did not disturb him much at night. Two weeks later he noted the same type of distress in his left ankle, and the condition had persisted until the present. No other joints were involved, though he had noted some "lumps" on the ends of his index and middle finger of the right hand. (These on examination were typical Heberden's nodes of osteoarthritis.) He smoked one and a half packages of cigarettes daily, but was a total abstainer from alcohol. He used meats, etc., moderately, but was not a trencherman; was of necessity on his feet many hours a day, and stated "he had had fallen arches ('sic') for years."

HISTORY

Close questioning revealed that for over twenty years he had had episodes of painful ankles, especially if he was on his feet much. This pain was accompanied by edema, redness and tenderness, and he believed the attacks were becoming more frequent of late. In the early part of the year (1937) he had visited a clinic in a nearby state for his hypertension and his swollen tender ankles. There his blood pressure was found to be 180 m.m. of mercury systolic, 100 diastolic. He was advised that his painful ankles were the result of his "metatarsal arches," and the swelling was due to "poor circulation." He was put on a regimen for his hypertension, given electrical treatments and Buerger's exercises for his painful feet, and advised to return in six months for a reexamination. Upon returning home his symptoms continued.

Examination showed a thin, apprehensive male of about his stated years. A definite anxiety concerning his "high blood pressure" was present. Nourishment and development were fair; arteries visibly pulsatile, and easily palpable, but all open in the extremities. There were no tophi on the ears, no bursal enlargements, and no joint involvement with the exception of the ankles and the previously mentioned Heberden's nodes. General examination, aside from a blood pressure of 180 m.m. of mercury systolic, 110 diastolic, and a slightly enlarged heart, was negative. Teeth were all false, tonsils small and buried, prostate slightly boggy with no secretion on massage. Both ankle joints were warmer than normal; there was no redness, but a definite malleolar tenderness especially marked medially, was noticed. Over the calcaneum on the right, there was a small hard nodule at the insertion of the tendon Achilles, and striking the calcaneal tuberosity elicited tenderness. There were a few superficial varicosities in the legs. Neurological examination was entirely normal and circulatory tests of the feet gave fairly good results.

A tentative diagnosis of chronic gouty arthritis was definitely distasteful to the patient, but consent was given for laboratory help. The x-rays of the tarsal bones were characteristic of gout, and the blood uric acid was 9.9 mgms. per 100 c.c. of blood. Of course essential hypertension was present and a moderate degree of arteriosclerosis as noted.

TREATMENT

The man was finally convinced that he had gout and treatment began. He was confined to bed, put on a strict diet with no meat, no nuts, low protein, high carbohydrate, and liberal fluid. Wine of colchicum was given in teaspoonful doses every four hours until symptoms of intolerance developed (in two days in this case). After ten days, he was somewhat improved, but still had tenderness in the feet when bearing any weight. He switched to colchicine in 1/64 gr. doses three times a day and again he quickly developed diarrhea and other symptoms of intolerance. Seven and one-half gr. of neocincophen was given three times daily for 10 days with no untoward result. Sodium bicarbonate in tea-

spoonful doses was given to keep the urine alkaline and protect against formation of uric acid renal stones. After four weeks in bed his joints were externally normal; edema had disappeared and there was only slight residual pain in weight bearing. A blood uric acid determination in six weeks was 5.5 mg. per hundred c.c. of blood; in two months, 4.4, and when last taken in February this year, it was 3.4 However, the clinical condition is still trying. He is unable to walk more than a few blocks without ankle pain, though he is free from pain or swelling if off his feet and at night. I believe this chronic gouty arthritis will continue to cripple him and that our only solution is to attempt to control his protein and purine metabolism to prevent further changes if possible. At the present time his diet consists of a small portion of chicken or lamb three times a week, no gravies, no soups made from meat stock, few eggs, and no nuts. Carbohydrate and fluid intake are unlimited. Neocincophen dosage is gr. seven and one-half three times a day for ten days, off seven, and repeat; sodium bicarbonate three times a day or more often if tolerated; avoidance of trauma and 12 hours of bed rest daily.

TOPHACEOUS GOUT

Case 3: Illustrating tophaceous gout with hyperuricemia, chronic gouty arthritis with residual changes, and complete x-ray evidence of gouty erosion.

A merchant, age 67, from a neighboring town, presented himself because of swelling and dermatitis of the ankles. This ankle edema was accompanied by marked pain on motion and he stated that "both big toes were sore." During his life the patient had been engaged in mercantile work, spending many hours on his feet, and he gave a twenty-five year history of episodes of "severe foot troubles", at first not severe, although disabling for several days, and clearing rapidly. During the past ten years he had noted deformity of his great toes with redness and tenderness, especially bad if he worked or walked a lot. These flare-ups of what had been called "foot strain", "arthritis", "rheumatism", and the like were incapacitating and for the past three weeks he was hardly able to walk; in fact he drove his car with difficulty between his various stores, staying in the car and talking to the managers. Close interrogation elicited the fact that preceding his most recent "attack" he had been on a hunting trip in Virginia, had worn heavy boots and had indulged frequently in beer and whiskey, eating game and much meat.

COLD FEET AND CRAMPS

He likewise complained of dyspnea on exertion, palpitation, some substernal discomfort, but no severe anginoid seizures. His feet were cold most of the time and cramps in the calves at night were very troublesome. He stated that he had "dermatitis" of his ankles for several years and that a small "ulcer" over his ankle discharged "thin stuff" at times. The remainder of his history called attention to failing vision, some loss of hearing, nocturia, frequency, but no symptoms of renal colic or passage of stone.

Physical examination showed a 67 year old male, dyspneic on any exertion, hobbling painfully on two canes, with a sweaty brow and cyanosed lips. There were small, hard nodules in both ears, on the helix. The terminal phalangeal joints showed osteoarthtitic changes, and the arteries were tortuous and hard. Pupils were round and equal, reacted to light and accommodation; eye grounds were those of arteriosclerosis without exudates or hemorrhages. The nasal septum was intact, teeth carious with many missing; tongue and pharynx negative, and tonsils not remarkable. The thyroid was not enlarged, and there was no cervical adenopathy. The chest was of the emphysematous type, with moist râles at both bases, but no sign of effusion. The heart was active; blood pressure 190 mm. of mercury systolic, 110 diastolic; pulse at wrist, 90; apex beat in the sixth interspace, 11 cm. from midline; sounds only fair, and a definite gallop rhythm present. There was mild ascites, and liver was palpable three fingers below the right costal margin. No other abdominal masses were noted, and the

genitalia were negative. Prostatic hypertrophy was present. Both legs showed moderate venous varicosities; the ankles were edematous and the edema extended to midcalf, distending the shiny, scaly skin which showed many "weeping" areas. There was a small stasis ulcer over the left internal malleolus, the examination of the secretion from which did not reveal urate crystals. Both great toes presented marked inward deviation (he called them "bunions"); the skin was dusky red, moderately hot, and definite tenderness could be elicited over the mesial aspect. The right great toe was worse than the left. A diagnosis of degenerative heart disease with congestive failure was made and the patient hospitalized for treatment and further study.

Laboratory studies of the urine showed no albumin, sugar, or fixation of specific gravity. The urinary uric acid was 30 mgms.; the blood uric acid 9.9 mgms. per 100 c.c. of blood; blood urea 10 mgms. per 100 c.c. of blood. Hemoglobin 90; red blood cells 4,300,000; white blood cells 10,050 with normal differential. Blood Wassermann and Kahn reactions were negative. The röentgen findings confirmed the clinical diagnosis, and likewise demonstrated rather marked arterial calcification.

TREATMENT SUCCESSFUL

Treatment of the congestive failure with rest, digitalization, theophylline with sodium acetate and salyrgan produced a satisfactory result in two weeks. There was no reaction to salyrgan and it was thought best to begin treatment of the gout as the edema and congestive signs disappeared. A low purine, meat-free diet was begun with wine of colchicum in doses of one teaspoon every four hours, plus soda bicarbonate and no fluid limitation. Within a few days his pain in the toes disappeared, and the rest in bed aided the dermatitis and stasis ulcer to clear in a fairly satisfactory manner. He was discharged on the above diet, warned against overeating; alcohol was not allowed, and he was instructed to take tablets of colchicine gr. 1/100 t.i.d. for ten days, and rest ten days. Of course, maintenance digitalis was prescribed with vasodilating drugs combined with sodium iodide and phenobarbital. A silver preparation (novoxil) in lanolin was used for the dermatitis.

I have since seen this man seven times. He is at work, though not allowed to be on his feet for more than four hours per day. His circulation is at least adequate, and he can regulate his colchicine so as not to produce diarrhea or other ill effects. His second blood uric acid was 6.4 mgms., but his last one, two weeks ago, was again 9.5 mgms. This shows control of symptoms, though the gouty process appears irreversible, and the joint deformities are permanent.

KNEE PAINS

Case 4:* Illustrating a very early pretophaceous gout with acute gouty arthritis, no x-ray changes, but with a hyperuricemia.

The patient, a 39 year old office manager, presented himself complaining of a painful right knee, which he stated was swollen. He volunteered the information that three weeks previously, after a week-end with friends in which there was some rather heavy drinking, he awoke in the morning with a rather severe pain in the left ankle, and noticed that it was slightly reddened and swollen. He thought that he had strained it somehow in the festivities, and consulted a physician, who concurred, and advised that he go to the hospital and have it treated. This he did, and after four days rest in bed on the routine hospital diet with purgation and symptomatic treatment, the left ankle cleared up entirely and he stated that "it felt just as good as before." He was dismissed from the hospital, and for the next ten days was apparently symptom free. When the next week-end arrived, he again had a convivial time, and two days later the right ankle became red, swollen and very tender. This distress spread to his right knee, which likewise was swollen, painful, and reddened. He voluntarily went to bed at home, but stated that the pain persisted, and seemed to be more severe at night. After

*Added July, 1938.

three days of rather severe pain, he consulted me, coming to the office hobbling painfully. A careful inquiry into the past history revealed no previous episodes of like description; in fact he stated, "Believe me, if I had ever had anything as painful as this before, I would have remembered it!"

Throughout the family history I found no evidence of any "arthritis" or gout. Inquiry into his past medical history elicited the fact that he had had scarlet fever at 10 years of age, occasional mild attacks of tonsillitis, and a moderate "influenza" with mild delirium in 1932. He had had gonorrhea at the age of 25, but stated he had no sequelæ or joint distress. A systemic review revealed no history of urinary calculus or other serious systemic disease. He admitted the periodical use of alcohol and stated that he usually had one or two drinks throughout each day. He likewise drank a great deal of milk, and liked meat; in fact, "steak was one of his favorite foods."

Physical examination revealed a ruddy complexioned, well developed and well nourished male of 39 years of age. He was of a "square" build; as stated before, he limped a great deal, and "favored" the right leg. General physical examination was not remarkable, and the teeth and tonsils were in good condition. His blood pressure was 140 mm. of mercury systolic, 100 diastolic, and the cardiovascular examination was negative. There were no tophi nor bursal enlargements. The left ankle showed no evidence of any preceding pathology. The right ankle was neither red nor swollen, but was definitely tender over the internal malleolus. Neither great toe showed any gouty signs. The right knee was swollen, the patella was floating, and flexion and extension were limited to 20 degrees. There was some heat, and a suggestion of redness of the skin. The prostate gland was moderately enlarged, nontender, and somewhat "boggy." There was some secretion which showed no gonococci, but a few pus cells. The patient was told that he probably had gout, and surprisingly enough he stated, "Well, I thought so!" It was then I discovered that he had been talking with the first patient reported in this paper.

Laboratory examination was done with the following findings: The urine showed a trace of sugar, good specific gravity, no albumin. It was highly acid in reaction. There were three or four pus cells per high power field, but no urate crystals were seen. Hemoglobin measured 94 per cent; erythrocytes 4,500,000; leucocytes 10,400, of which 80 per cent were neutrophiles; 55 banded forms; 21 segmented forms; lymphocytes 13; monocytes, three; eosinophiles, four. Blood smears were negative. Wassermann and Kahn tests were negative. Blood sugar measured 90 mgms. per 100 c.c. of blood. Blood uric acid was 8.3 mgms. per hundred c.c., and the urine uric acid in a 24 hour specimen was reported as 2.16 gms., a definite elevation. Röentgen ex-

COMPARISON OF FOUR CASES

CASE NO.	URINARY URIC ACID	BLOOD URIC ACID	ROENTGEN STUDIES	SIGNIFICANT CLIN FINDINGS
1. Male Age 51 Salesman	Feb. 6 - 26 mg/100 Mar. 1 - 40 mg/100	Feb. 6 - 8.3 mg/100 cc. Mar. 1 - 7.4 mg/100 cc. Apr. 5 - 8.0 mg/100 cc.	"Hypertrophic arthritis spine - ? if gout." "Left great toe neg. for gouty changes."	No tophi. Good response to therapy. "At work."
2. Male Age 60 Druggist.	Mar. 12 - 32 mg/100 cc	Nov. 15 - 9.9 mg/100 cc. Dec. 30 - 5.5 " Feb. 12 - 4.4 " Mar. 14 - 3.4 "	"Both ankles and big toes positive for gout."	Achilles tophi? Fair control. "Working."
3. Male Age 67. Merchant.	Apr. 4 - 30 mg/100	Apr. 1 - 9.9 mg/100 cc. Apr. 6 - 6.4 " May 10 - 9.5 "	"Great toes show the typical changes of gout."	Tophi. Dermatitis. Cong. failure. "Up and about."
4. Male Age 39 Office Mgr.	July 1 - 21.6 mg/100	July 6 - 8.3 mg/100 cc.	"No X-Ray evidence of gout."	No tophi. Good control. "Works every day."

amination of both ankles and the right knee joint showed nothing suggestive of gout.

He was put on a low purine diet as outlined; liquor was absolutely forbidden, and he was given colchicine gr. 1/50 every four hours for eight doses; then gr. 1/100 every four hours for twelve doses; then gr. 1/100 three times a day. His urine was rendered alkaline by large doses of citrocarbonate. In five days, he reported that the pain was entirely gone; in fact it disappeared after the first five doses of medicine. He was able to walk without limping, and stated that he felt as well as before. There was still some slight residual swelling of the right knee joint; otherwise his examination was negative.

This case has been added to the three cases in the original paper, and is of such recent date that I have not as yet checked for a fall in the blood uric acid. There is no doubt that this man has been discovered in his first attack of gouty arthritis, and I feel that with the proper treatment, we can prevent the usually damaging sequelæ of the undiagnosed and untreated cases.

These cases are illustrative of the disability gout and gouty arthritis can occasion. They are representative of the type of case we are likely to bump into at most any time, and I hope these rather rambling remarks will serve to make us all more "gout conscious." In the long standing chronic cases the treatment is not curative, but rather is directed to alleviating painful symptoms and attempting to prevent further joint damage and its crippling sequelæ. I believe these cases demonstrate partial rehabilitation—whether we will be able to "cure" the gout is quite debatable.

The treatment of gout can be divided into five phases:

1. Treatment of the acute attack as outlined.

2. Prevention as far as possible by prophylactic advice and dietary regimen.

3. Treatment of chronic gouty arthritis by rest or orthopedic measures.

4. Careful elimination of foci such as may exist in tonsils, teeth, sinuses, prostate, etc.

5. Painstaking observation to exclude mild diabetes, exophthalmic goitre, renal damage, blood dyscrasias, and other conditions which seem to upset control of the gouty diathesis.

In conclusion, I feel that the problem of recognizing gout in its early years before osseous or renal changes occur is directly the concern of those of us in private practice. The triumph of diagnosing our own cases as gout should far outweigh the time and trouble incurred, and certainly saves us from the chagrin attendant upon being reminded of our failure by some clinic where all laboratory facilities have been brought to bear to show us where we "missed the boat."

STUDY OF MEDICAL CARE

"Reports received on the American Medical Association Study of Need and Supply of Medical Care already cover a far larger sample of the population than has been covered by any previous survey," *The Journal* of the Association for February 18 says in an editorial.

"This is the first survey that has asked and obtained information from all groups in the population definitely interested in medical care. Many who should know better still repeat the falsehood that this survey requests information from physicians only and insinuate that doctors know nothing about those who do not come to the physician's office.

"Only one of the nine forms used in this survey is directed to physicians and dentists. The others are sent to hospitals, nurses, health departments, welfare and relief agencies, schools both public and parochial, colleges and universities, fraternal and similar organizations, and pharmacists. All these are asked for information concerning persons unable to obtain needed and desired medical care. Not one significant source of first hand, reliable information as to medical conditions has been omitted.

"The returns from the eight forms sent to others than physicians are uniformly much more complete than those from the physicians and dentists. It is not at all uncommon for a county medical society to receive 100 per cent replies from these institutions and individuals, while no such percentage of returns has ever been obtained from physicians and dentists."

SULFANILAMIDE IN THE TREATMENT OF GONORRHEA IN THE FEMALE*

By A. P. HUDGINS, M. D.
Charleston, West Virginia

MUCH has been written about sulfanilamide in the treatment of gonorrhea, but only a few of these reports are about gonorrhea in the female, the vast majority being about infection in the male. There are many uses to which sulfanilamide may be put in gynecology and obstetrics. This report is concerned solely with gonorrhea and only with cases microscopically diagnosed. The drug was given in certain other cases and a report will be made later about its effect on salpingitis and other conditions.

The cases in this report were chiefly from the city gynecological clinic. An effort was made to eliminate the probability of reinfections from the failure group. Reinfection was established in two cases. The type of cases seen makes it difficult to determine this factor due to the unsatisfactory history.

The routine in this series was: Complete pelvic examination, repeated smears, Wassermann, and in some cases, blood studies including hemoglobin, red cell count, and in a few sulfanilamide determinations in the blood and urine.

The duration of infection is difficult to determine in most cases and so the onset was classified as to months, weeks or days.

DURATION OF INFECTION

Months	13 cases
Weeks	8 cases
Days	2 cases

A number of these cases had been treated over long periods of time by the old method of local applications (silver nitrate) and medicated tampons (merthiolate) and the response was remarkable at times.

The drug was given in five grain tablets with the instructions to take each dose with a glass of soda water and the warning that no salts be taken during the treatment, and that sunshine be avoided. The dosage: Four tablets four times a day for two days, three tablets four times a day for two days and then one tablet four times a day for three to six days. Additional medication was necessary (more than one series) in eight cases; two series in six cases; three series in one case and four series in one case.

The patients were told that they would be uncomfortable during the treatment, but were urged to continue and to submit to the inconvenience for the brief period while the tablets were being taken. They were to report regularly to the clinic for observation and supervision.

REACTION

Practically all of the patients complained of some discomfort while taking sulfanilamide, ranging from a mild gastric disturbance to extreme dizziness, weakness and depressed feeling. Disturbances other than noted above were headache, lassitude, anorexia and insomnia. There were no cases in which cyanosis was seen. There were no serious complications in this series.

AGE OF PATIENTS

The age of the patients treated was from eight to fifty-eight years.

8 years (youngest)	1
13-19	5
20-30	14
30-40	1
40-50	1
50-60 (58 years)	1

The eight year old girl required four series before the smear returned negative (after 30 days). The fifty-eight year old patient did

THE AUTHOR

Dr. Archibald Perrin Hudgins of Charleston; graduate Medical College of Virginia, Richmond; Obstetrics and Gynecology; formerly secretary of Summers County Medical Society 1928-1934.

*Van Pelt and Brown, Inc., Richmond, Virginia, generously supplied the sulfanilamide for this study.

not show any unusual reaction to the medication and the smear was negative in fourteen days.

Of the twenty-three cases treated, nineteen were "cured" (three successive negative smears at intervals). Four of the series did not clear up under treatment. Two of these were definitely subjected to reinfection, and in one case there was a questionable history of subsequent exposure. One did not remain under treatment after the first two weeks—the smear was still positive.

The adenexal involvement was noted as follows:

Mass size of walnut	1
Induration	4
Tenderness	13

The Wassermann was positive in about one-third of the cases and these were receiving antiluetic treatment at the city clinic. This apparently did not have any bearing on the effect of sulfanilamide.

The time of response was from three to forty days, occurring in three, four, five, six, seven, seven, seven, ten, eleven, twelve, thirteen, fourteen, fourteen, fourteen, sixteen, thirty, and forty. The average was 11 days. In two cases this time period could not be accurately determined.

Symptomatically the patients reported prompt improvement in the majority of the cases. The discharge and lower abdominal pain decreased within a few days.

Auxiliary treatment was used in some cases, consisting of silver nitrate to the cervix and merthiolate tampons.

In several cases which had had a previous history of gonorrhea, though the slide was negative now, remarkable improvement was noticed in the vaginal discharge following the use of sulfanilamide.

CONCLUSIONS

Sulfanilamide is very effective in the treatment of gonorrhea in the female. (Series of 23 cases).

Failures—four—two traced directly to repeated contacts, and one with a questionable history. One discontinued treatment against advice after fourteen days.

Average time for negative smear, 11 days; reactions, all reported discomfort in some way, but no serious reactions resulted.

NOTE: The help of the Mountain State Hospital laboratory and of the West Virginia State Hygienic Laboratory (Miss K. E. Cox, director) is gratefully acknowledged.

Professional Bldg.

CANCER IN WOMEN

Cancer of the stomach is found twice as frequently in men as in women, but all persons more than 30 years of age should be suspected of it when certain symptoms are found, Sara M. Jordan, M.D., Boston, concludes in a discussion of the results of her study of 251 cases of such cancer, reported in *The Journal of the American Medical Association* for February 18.

Symptoms suggestive of cancer of the stomach occur in two stages. Those of the first stage most frequently observed are pain or distress, loss of appetite and weight, vomiting, loss of strength, belching and hiccups, difficulty in swallowing, pallor, nausea without vomiting, diarrhea and constipation.

The second stage may involve a change in the character of the primary symptoms, such as an intensification or a change in the time of occurrence of pain.

The same symptoms are found in different incidences in the two stages.

Present day methods for the early diagnosis of cancer of the stomach are adequate. These methods must be used with precision and applied and reapplied with constant vigilance.

A tired middle-aged patient should not be sent away for a rest or long holiday, even though his fatigue is adequately explained by circumstances, without examining and reexamining him for cancer of the stomach, and the "run-down" middle-aged patient should not be treated for anemia before a thorough study of his digestive tract has been made.

The patient must be educated to the idea of early and repeated examinations if unexplained symptoms persist.

In spite of the well grounded pessimism regarding the average results in the treatment of cancer of the stomach, cures can be had. The earliest possible diagnosis will result in the longest possible survival.

Tuberculosis Abstracts

Furnished Through the Courtesy of the West Virginia Tuberculosis Association

Bitter experience has taught many a practitioner to keep tuberculosis always in mind. Cough, expectoration, fatigue and other indefinite symptoms rouse in him the suspicion that tuberculosis may be the cause. Such an attitude is good but it should be balanced by the realization that there are many conditions strongly suggestive of tuberculosis which are nontuberculous. At the 34th annual meeting of the National Tuberculosis Association there was presented a symposium on "Chronic Nontuberculous Infections of the Lung." Abstracts from one of the papers, based on experiences in the Department of Medicine, University of Chicago, are here presented:

CHRONIC NONTUBERCULOUS INFECTIONS OF THE LUNG

Bronchiectasis and abscess are the most important nonspecific pulmonary infections, especially from the standpoint of public health. A study of the clinical material accumulated over a period of 10 years results in a number of etiological and clinical observations. Röentgenological examination is a minor aid in recognizing nontuberculous infections of the lung (though necessary in diagnosing their exact distribution and extent) because the anamnesis together with physical examination leads so securely to a diagnosis.

BRONCHIECTASIS

Of 200 patients' records with the diagnosis "bronchiectasis" admitted to the institution in a ten-year period, 140 were rejected for various reasons: i.e., bronchiectasis was diagnosed as a minor condition of little significance; it was merely registered as an impression; the bronchiectasis was a development secondary to tuberculosis. The remaining 60 cases that were studied include only those in whom moderate or pronounced symptoms of bronchiectasis were the sole reason for their having sought medical aid, in whom the presence of the condition was known and in whom a reasonable effort had been made to find extrapulmonary etiology. Almost all had an advanced degree of bronchial dilatation.

The ages of these 60 cases ranged from 10 years to 67, the average age being about 29 years. The estimated average age at the beginning of symptoms was about 14 years and the average duration of chronic symptoms about 15 years.

Primary, or predisposing conditions and the secondary or immediate cause, are recognized. The primary condition consists largely of the array of upper respiratory tract infectious diseases. Among the secondary causes, involvement of the nasal sinuses, chiefly the maxillary ones, play the dominant rôle in the origin of bronchiectasis. In this series 45 per cent had definite, and 33 per cent indefinite, sinusitis. The discovery of a sinus condition is not only of etiological interest but of great therapeutic importance. Sinus involvement cannot be ruled out without a röentgenological examination. Treatment of sinusitis cannot be expected to influence existing bronchial dilatations except, perhaps, in the small child, but it is a prerequisite for the attempt to arrest the process.

The symptoms found in the group did not conform to current beliefs. The general condition was poor in 25 per cent and just fair in the rest. Copious expectoration, however, occurred only in about two-thirds, and odorous sputum, supposedly an outstanding characteristic of the condition, in less than half. Hemoptysis occurred frequently enough to be eliminated as a criterion in the differentiation of bronchiectasis from other pulmonary diseases, especially tuberculosis.

One or both lower lobes were involved in 54 cases (90 per cent). Of single lobes, the left lower one was most frequently affected (33 per cent). There is no good explanation to offer for the frequent involvement of the left lower lobe.

The therapy of bronchiectasis, until very recently, has been a disappointing chapter. Conservative procedures, such as general management, postural drainage, bronchial lavage, and bronchoscopic treatment, are palliative and any improvement is merely symptomatic. By meticulous care the progressive bronchial dilatation will, at best, be delayed, and the patient remains an easy victim for complicating or intercurrent disease. Collapse therapy has, on the whole, proved itself a failure. During the past few years very encouraging results have been reported from removal of bronchiectatic lobes. Lobectomy, however, requires a unilateral, or practically unilateral, involvement. In suitable cases the patient should be urged to submit to operative treatment.

PREVENTION NEGLECTED

The most important of all therapies, prevention, has been sadly neglected up to now. There is a good deal of parental negligence toward chronic, upper respiratory infections and moderate chronic bronchitis in children. The threat of a severe and permanent bronchial damage is practically unknown.

(Continued on page xxiv)

President's Page

The last report sent the component county societies, of the work of the Low Cost Study Committee may seem to you rather radical. Having been present at all these meetings, I can assure you that these decisions and recommendations were made after most careful study and discussion of the entire problem. The committee has been in close touch with conditions in Washington and had access to information of the work and plans of other State Societies. Medical Bureaus have not proven successful and prepayment Medical Insurance plans in small areas have not answered the problem. All are agreed on active endorsement and cooperation in Hospital Insurance programs because no Medical Insurance plan can be worked without this protection.

Senator Wagner's speech on the President's birthday informs us of what we might expect in the way of immediate national legislation. He states that the question of compulsory health insurance arises only in connection with state plans of general medical care and that the bill will not impose a federal straight jacket upon the development of state plans. He states that the program authorizes federal grants to the individual states for public health service, maternity and child care, construction and maintenance of needed hospitals and health centers and for a general program of medical service. He feels that the advice and active cooperation of the medical profession is essential to the success of any program. He also states that under no circumstances will the Federal Government go into the business of furnishing medical care, or interfere with the states in the licensing of medical or other practitioners. State plans would be established only after consultation with the medical profession, who would also be fully represented on advisory councils.

Most of us are convinced that some program for better *distribution* of the cost of medical care and benefits of medical science is necessary. Therefore, in view of these facts and studies, your committee feels that a state-wide program is the only answer to the problem. They will continue to work with the best legal and insurance advice available and will evolve a program which will be presented to you as soon as completed and to the House of Delegates in July for final action. In the meantime, the county societies can continue to help by gaining the interest and cooperation of every member, education of the public, and increased activity of their legislative committee.

Ray M. Bobbitt

President.

West Virginia Medical Journal

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LEGISLATION - 1939

Elsewhere in this issue there is printed a brief digest of legislative proposals of interest to the medical profession in this State, some of which may have advanced beyond the proposal stage by the time these columns are read.

For one reason or another the bills briefly outlined in another column of this issue are of some concern to the doctors, but because we believe they merit special treatment from the editorial viewpoint, we have transferred reference to three bills of particular interest to this column.

No doubt the public press has conveyed the information to all sections of the State that a proposal has been advanced through the medium of House Bill No. 117 to amend the marriage laws so as to require as a prerequisite to the issuance of marriage licenses the filing of a certificate from a licensed physician stating that the applicant has been given a medical examination, including a standard serological test, in order to determine the prevalence or nonprevalence of syphilis. Of course the purpose of the bill is to decrease the spread of syphilis by setting up legal barriers to the issuance of marriage licenses to persons likely to communicate this disease. Although there is obvious widespread favorable reaction to the purpose of the bill, there have been retarding objections to certain administrative provisions and other technicalities. The House of Delegates quickly approved House Bill No. 117, and it was readily approved by the Senate Committee on Medicine and Sanitation when first referred to that group by routine legislative rule. Opponents of the present three-day waiting period provision of the marriage law used House Bill No. 117 as a medium through which to renew attacks thereon and were successful in having the bill referred back to the Senate Committee on Medicine and Sanitation, where it still reposed in a state of controversy at press time.

It seems that no session of the Legislature will be official unless the "faith healers" attempt to amend the medical practice act so as to put faith-healing on approximately the same legal basis as professional licensure, but without any of the educational or technical requirements incumbent upon professional licensure. House Bill No. 255 and Senate Bill No. 152 are the faith-healers' efforts this year, and as in the past, the Medical Association is opposing them on the ground that it would be unsound public policy for the Legislature to permit by statutory enactment faith-healing on a commercial basis. This is exactly what these bills would do, inasmuch as there would be no bar against anyone practicing faith-healing in offices set up for that purpose. The respective committees on Medicine and Sanitation of both the House of Delegates and the State Senate had taken no action on either bill at press time. In the interest of protecting the public against what we feel is unsound policy, the Medical Association will continue its efforts to educate the legislative committeemen and the legislators in general of the dangers inherent in these bills.

Although it has jestingly been referred to as a "sign painters' bill," Senate Bill No. 159 by Doctor Ward Wylie, senator from the ninth senatorial district, is a Medical Association-sponsored measure designed to make it "unlawful for any person to use the prefix 'Doctor' or 'Dr.' in connection with his name in any letter, business card, advertisement,

sign or public display of any nature whatsoever, without affixing thereto suitable words or letters designating the degree which he holds." This bill, which we feel has excellent chance of enactment at this session, will require a "few" changes in signs, but, for the most part, we feel that the addition of "M.D." as a distinguishing designation will be welcomed by our members, and will be a safeguard which the public should appreciate.

HAIL, TAYLOR COUNTY

The Taylor County Medical Society carried off the honor of being the first society in the state to report all 1939 dues paid up and all members in good standing for the current year. Dr. Harold Noble, Grafton, is the secretary.

This, by the way, is a good time to remind all Association members that the deadline for payment of 1939 dues is March 31. After that date, the names of all unpaid members are placed on the delinquent list and removed from the JOURNAL mailing list. Members who have not yet sent in their 1939 dues to their county secretaries should do so at once.

DR. VEST HONORED

Dr. Walter E. Vest of Huntington, JOURNAL editor and president of the Southern Medical Association, will be awarded the honorary degree of Doctor of Science at the commencement exercises of the Medical College of Virginia on June 6, 1939, according to a recent announcement by Dr. William T. Sanger, president. This honor has been conferred annually for the past three years upon outstanding alumni.

Dr. Vest graduated from the Medical College of Virginia in 1909 and has practiced in West Virginia since 1916. A native of Virginia, he is well known in the Old Dominion as well as in West Virginia and has given many years of distinguished service to the organized medical profession.

LOW COST STUDY COMMITTEE

The Association's Low Cost Study Committee, on December 15, 1938, recommended to the Council that county medical societies be encouraged to establish medical service bureaus for the low income groups. It was further suggested that some of the larger county medical societies experiment with prepayment insurance plans for medical and surgical service.

About one month ago all county societies were requested to "stand by" on these recommendations, pending further instructions from the Low Cost Study Committee. The committee met in Huntington on February 2. Thorough discussion developed the following points:

1. That recently established medical service bureaus in other parts of the country were not successful.

2. That attempts, made by two of our larger county medical societies to establish prepayment insurance plans for medical and surgical service, fell through because no approved statewide plan has been submitted for consideration.

3. That Association leadership can best be provided through the recommendation of a uniform statewide plan of prepayment medical and surgical insurance, which the Low Cost Study Committee has not the authority to establish.

4. That the establishment of a statewide insurance plan for medical and surgical service for the low income group is of such vast and vital importance that it should be considered only by the Association's House of Delegates at the annual meeting in July.

In view of the above considerations, the committee voted unanimously to rescind its former recommendations relating to county society plans and to start work immediately on a statewide insurance plan to submit to the House of Delegates at the White Sulphur Springs meeting. The decision of the House of Delegates on this matter will, of course, be final.

Just as soon as the committee completes its preliminary work, a draft of its proposals will be submitted well in advance to the delegates and to each county society for consideration. It is hoped that members will keep an open mind on this matter until this preliminary work is accomplished. However, all members who have suggestions or recommendations, or any information that might be of value to the committee, are urged to write either the committee's chairman, Dr. R. J. Wilkinson, 1119 Sixth Avenue, Huntington, or the headquarters office, Charleston. All suggestions will receive the earnest consideration of the committee.

Between now and convention time, the committee is most anxious for each county society to promote nonprofit hospital service insurance. The influence of the county societies should back up already existing plans, and should be utilized to assist in the proper promotion of new plans (as community projects) where none exist. The State Association will be happy to assist the county societies, upon request, in the establishment of nonprofit hospital service plans.

SENATOR WAGNER'S SPEECH

At press time the anticipated health bill by Senator Robert F. Wagner had not yet been introduced in Congress. There has been much conjecture over what Senator Wagner's bill will contain. It has been generally recognized that it would embody the essential features of the proposed National Health Program. Much doubt has been expressed as to whether or not it would include a program of compulsory sickness insurance.

Senator Wagner answered this question himself in his radio address on the National Health Program delivered over a nationwide hookup on the evening of January 30, 1939. Stated briefly, Senator Wagner favors national legislation which will encourage the various states to establish state controlled compulsory sickness insurance systems. He stated in his address, "Under no circumstances will the Federal Government go into the business of furnishing medical care, or interfere with the States in the licensing of medical or other practitioners. State plans would be established only after consultation with the medical professions, who would also be fully represented on advisory councils."

Further in his address Senator Wagner stated, "The question of compulsory health insurance arises only in connection with State plans of general medical care. * * * The bill will not impose a federal strait jacket upon the development of State plans. Subject to necessary basic standards, each State will be at liberty to set up a plan of its own choosing and geared to the needs of its own people. The plan may be supported by contributions from beneficiaries or by general taxation, or both. It may be limited to some phases of medical care or be more inclusive. It may cover only the relief population or include other groups higher in the economic scale. The States will be free to establish compulsory health insurance if they choose to do so. It is important that this election be left open to them."

FAT TISSUE AND CANCER

Dead fat tissue in the breast is definitely significant as it may be mistaken for cancerous tissue, says an editorial in *The Journal of the American Medical Association* for February 18.

Two cases are cited in which a breast, believed to be cancerous, was removed mistakenly.

"Injury and infection are factors in causing fat tissues to die," the editorial says. "But the frequency of injury and infection to which the tissues and fat are exposed and the rarity of the lesion suggest that there must be still another factor. It has been suggested but not proved that pancreatic cells may be transported to such areas, remain latent and be activated by injury.

"In about 40 per cent of the forty-five cases reported there was a history of rather severe injury to the breast and in most of them the tumor developed where the injury was inflicted. There was no discharge from the nipple. The history of duration of the tumor varied from ten days to two years. The tumor appears as a firm painless nodule which gradually and at times rapidly increases in size."

General News

LEGISLATIVE ABSTRACTS

HOUSE BILL NO. 79 (By Delegate Swann of Cabell)

This bill, which would have regulated and provided for the inspection of the business of plumbing, and would have required the State Department of Health to establish and administer a detailed plumbing code, was defeated by the House of Delegates on February 14.

HOUSE BILL NO. 93 (Administration Budget Bill)

In the Senate, the biennial budget bill is known as Senate Bill No. 50, and is the same as House Bill No. 93. The biennial budget bill now before the Legislature is for the period from July 1, 1939 through June 30, 1941, and is designed to provide funds to operate state departments, institutions, bureaus and programs for that period. From the standpoint of the medical profession the most important features of the budget bill are those relating to appropriations recommended for the Department of Public Assistance. The Budget Commission has recommended to the Legislature a $1,000,000 reduction in the amount to be allocated to the Department of Public Assistance for general relief purposes. A quarter of a million of this one million dollar reduction is proposed for the fiscal year beginning July 1, 1939 and ending June 30, 1940, and the remaining $750,000 is proposed to be cut away from the 1940-1941 fiscal year appropriation. Relief, of course, is a fluctuating and unpredictable quantity, but if the Legislature accepts the Budget Commission recommendation and enacts a budget bill with Public Assistance appropriations $1,000,000 less than those for the biennium ending June 30, next, it is highly probable that medical relief, relief hospitalization, and physical rehabilitation will be curtailed considerably.

HOUSE BILL NO. 94 (By Delegate Shinn of Harrison)

This bill is the same as Senate Bill No. 31, introduced by Senator Fleming. These bills carry identical provisions for the amending of the present statute relating to funeral directors and embalmers by adding, among other new provisions, the following one of interest to the medical profession:

"No public officer, employee, or officer of any public institution, physician or surgeon, or any other person having a professional relationship with the deceased, shall send, or cause to be sent, to any funeral director, undertaker, mortician or embalmer, the body of any deceased person without having first made due inquiry as to the desires of the next kin, or any person who may be chargeable with the funeral expenses of such deceased person; and if any such kin or person can be found, his authority and direction shall be received as to the disposal of said corpse."

As this digest was prepared these two bills were still before the respective committees on Medicine and Senitation in the House and Senate.

HOUSE BILL NO. 108 (By Delegate Strouss of Monongalia)

This is a Tax Department bill designed to clarify certain existing provisions of the Consumers' Sales Tax law. Its principal purpose, we are told, is to make more "air-tight" the commissioner's recent ruling that doctors, and others, must pay the two per cent consumers' sales tax on all purchases of materials not for resale in their original form without change or processing. In other words, unless the doctor makes a specific charge to the patient for medicine, etc., and collects the two per cent tax from the patient (and remits the same to the Tax Department), he must pay the two per cent tax to the merchant at the time the supplies are purchased. As stated previously, the purpose of House Bill No. 108, is to clarify the existing statute, and the tax commissioner is expected to issue further rulings of importance to doctors, hospitals, druggists, etc., in the near future, if the bill passes.

HOUSE BILL NO. 129 (By Delegate Swann of Cabell)

This is a bill which the medical profession and hospitals, among others, had hoped the Legislature would enact for the purpose of exempting "the sale of supplies intended for use and consumption in the rendering of * * * professional services," and "sales to hospitals and charitable and eleemosynary institutions of supplies intended for use in the operation of said hospitals and institutions." The House Committee on Taxation and Finance refused to consider this bill, however, under a technical constitutional ruling, so effort was made to obtain the same results as House Bill No. 129 would have effected through amendment to House Bill No. 108, but, unfortunately, without success insofar as the medical profession is concerned.

HOUSE BILL NO. 273 (By Delegate Strouss of Monongalia)

Prepared by the Tax Department, this bill is designed as a companion measure to the State's consumers' sales tax law, and, if enacted, will impose a two per cent "use tax" on all tangible personal property not subject to the consumers' sales tax. Its purpose is—so its sponsors claim—to protect West Virginia business by levying a tax equal to the consumers' sales tax on all property purchased outside of the state. The tax is not on the out-of-state sales transaction, but is levied upon the use of the property when it reaches this State. For the reason that many of the medical, surgical and institutional supplies required to be used by doctors and hospitals must be bought outside of the state, this proposed new tax is of particular importance to the medical profession. Another important aspect is that the user of the tangible personal property tax is made responsible for the payment thereof to the Tax Department. In other words, if this bill is enacted, the doctors will be required to remit to the Tax Department at Charleston a tax equivalent to two per cent of the sales value and transportation cost of everything they buy from Cincinnati, Chicago, Pittsburgh, etc. These returns must be made monthly.

As this digest is prepared there is no definite information available on the prospect that this bill will be enacted, but it is likely to have the support of West Virginia business, and, therefore, may pass.

HOUSE BILL NO. 110 (By Delegate Pauley of McDowell)

This bill would make the State Public Health Council responsible for the prescribing and enforcing of "minimum reasonable standards and rules regulating the methods to be pursued in the obtaining of pure drinking water for human consumption and the establishment of all safeguards deemed necessary in protecting the public health against the hazards of polluted sources of impure water supplies intended or used for human consumption." House Bill No. 110 apparently is particularly designed, however, to regulate the water well drilling industry.

HOUSE BILL NO. 156 (By Delegate Jones of McDowell)

This is a bill prohibiting a physician from testifying in any legal proceeding, without his patient's consent, concernng any confidential information given by the patient necessary to his treatment. A similar statute now protects the legal profession in this regard.

HOUSE BILL NO. 87 (By Delegate Erwin of Putnam)

Apparently sponsored by the West Virginia Municipal League, this bill proposes to authorize any municipality, by ordinance, to levy privilege taxes on business, professions, trades, and occupations.

If enacted, this bill would affect the medical profession with relationship to privilege taxes. The City of Morgantown, by ordinance, and without specific legislative authority, attempted to levy a privilege tax on professions during the past year, and the Monongalia County Medical Society, with assistance from the State Medical Association, challenged the validity of the ordinance in court. The circuit court upheld the profession's legal objection and declared the tax invalid. Through House Bill No. 87, the municipalities now hope to establish the validity of such taxes, but as this outline was written the bill had made no progress in the Legislature.

SENATE BILL NO. 107 (By Senator Johnston of Mercer)

This is a bill sponsored by the Hospital Association designed to establish Hospital Service Plans on a legal basis under the supervision of the State Insurance Commissioner, but setting them up on less stringent but equally sound basis as compared with general insurance. As originally drafted and introduced, Senate Bill No. 107 was detailed and specific with relationship to the organization structure of Hospital Service Plans, and the powers of the Insurance Commissioner with respect thereto, but in order to meet objections from some sources that the provisions provided excess regulatory control, a compromise measure was worked out, and at press time was being considered by the Senate Committee on Insurance.

SAMUEL D. GROSS PRIZE

A bulletin from the Philadelphia Academy of Surgery announces that competition for the Samuel D. Gross Prize of $1,500 for the best original essay illustrative of some subject in surgical pathology or surgical practice founded upon original investigations, is now open to any American citizen.

Trustees of the Samuel D. Gross Prize, stipulate that essays to be considered must not exceed 150 printed pages, must be written by a single author in the English language, must be typewritten, distinguished by a motto, accompanied by a sealed envelope bearing the same motto, and containing the name and address of the writer. It is expressly stipulated that the competitor who receives the prize

shall publish his essay in book form, and that he shall deposit one copy of the work in the Samuel D. Gross Library of the Philadelphia Academy of Surgery.

The essays entered in competition for the prize should be addressed to "Trustees of the Samuel D. Gross Prize of the Philadelphia Academy of Surgery, care of the College of Physicians, 19 S. 22d Street, Philadelphia, Pennsylvania," on or before January 1, 1940.

MISSISSIPPI VALLEY ESSAY AWARD

Notice has been received from Dr. Harold Swanberg, secretary of the Mississippi Valley Medical Society, 209-224 W.C.U. Building, Quincy, Illinois, to the effect that the Mississippi Valley Medical Society is offering a cash prize of $100.00, a gold medal and a certificate of award for the best unpublished essay on a subject of interest and practical value to the general practitioner of medicine. The notice stipulates that entrants must be members of the American Medical Association, that the essay must not exceed 5,000 words in length, must be typewritten in English in manuscript form, and that five copies of the contribution must be submitted not later than May 1, 1939. The winner will be invited to present his contribution before the next annual meeting of the Mississippi Valley Medical Society, Burlington, Iowa, September 27, 28 and 29, 1939.

OBSTETRICS AND GYNECOLOGY

The American Board of Obstetrics and Gynecology, in a recent bulletin, announced that general oral, clinical and pathological examinations (part II) for all candidates in Groups A and B, will be conducted by the entire board on May 15 and 16 at St. Louis, Missouri, immediately prior to the annual meeting of the American Medical Association. Application for admission to Group A, May, 1939, examinations, must be filed with the secretary, Dr. Paul Titus, 1015 Highland Building, Pittsburgh, Pennsylvania, by March 15, the bulletin further states.

Announcement also has been made that the American Congress on Obstetrics and Gynecology will be held in Cleveland, Ohio, September 11 to 15, 1939, and that further information on the plans and subject of the convention may be had by addressing the central office of the Congress, 650 Rush Street, Chicago, Illinois.

OBSTETRICAL PILGRIMAGE

The annual clinic pilgrimage of the West Virginia Obstetrical and Gynecological Society will journey to Pittsburgh for two days of intensive study on Monday and Tuesday, April 3 and 4, 1939. The itinerary has just been announced by Dr. Harry Steele, Bluefield, who is in charge of the arrangements. This intensive two day period of postgraduate study is an annual custom of the obstetrical society and has always been unusually well attended. Doctors who are interested in the Pittsburgh study trip should get in touch with Dr. Steele at once.

The complete itinerary follows:

Monday morning, April 2, 9 a. m.: Obstetrical and gynecological operations at Magee Hospital under Doctors Ziegler and Cashman and members of the staff.

Twelve o'clock: Noon luncheon at Magee Hospital.

One-thirty o'clock: Operative clinic, Pittsburgh Hospital under Dr. T. K. Reeves and Doctors Evans, Conti and staff.

Eight-thirty o'clock: Obstetrical society dinner and annual meeting.

Tuesday morning, April 3, 2 o'clock: Operative clinics in obstetrics and gynecology at Mercy Hospital under Doctors Bietsch, Gillis and staff.

Noon lunch, 12 o'clock, Mercy Hospital.

Two o'clock: Symposium on obstetrics and gynecology at St. Margaret Memorial Hospital, led by Dr. Paul Titus.

Four o'clock: Visit to Allegheny General and Monteflore Hospital.

GOITER STUDY ASSOCIATION

Cincinnati has been selected as the convention city for the annual meeting of the American Association for the Study of Goiter, according to an announcement from the secretary of that association. The meeting will be held May 22, 23 and 24.

AMERICAN COLLEGE OF PHYSICIANS

The American College of Physicians will assemble for the twenty-third annual meeting at New Orleans, Louisiana, March 27-31, and announcement has been made that special trains will be run for the occasion, the first leaving New York on March 25, and others leaving on March 26 from Cincinnati, Chicago and St. Louis.

MISSING JOURNALS

Again we publish the list of copies of the WEST VIRGINIA MEDICAL JOURNAL needed to complete our files in the Association headquarters library at Charleston. Members of the Association who have old copies of the WEST VIRGINIA MEDICAL JOURNAL are respectfully requested to check their copies with the missing numbers listed below. A great favor will be bestowed on the Association by any member who is able to supply any of these missing JOURNALS. The missing copies are:

1906—October and December.
1907—December.
1908—January and May.
1910—March and June.
1911—January and October.
1912—April.
1913—March, April and May.
1914—January, February, March, April, May, June and July.
1915—January, July, and September.
1916—February, April, May, September, October.
1917—April and August.
1918—May, July, and September.
1919—February and March.
1920—September.

REQUEST FROM CHINA

The JOURNAL is in receipt of a communication from T. L. Yuan, Director of the National Library of Peiping, requesting American reprints and medical journals to replace those destroyed in the military occupation of Peiping. Mr. Yuan reports that the need of scientific literature by Chinese scholars is especially urgent at this time.

The Peiping National Library has recently established an office in Kunming, Yunnan province, where books and journals are being collected to meet the intellectual demands. Mr. Yuan asked that we request our Association members to send reprints of scientific material which they have had published. Donations of reprints, books and scientific journals should be sent in care of the International Exchange Service, Smithsonian Institute, Washington, D. C.

It is safe to say that about half of the victims of syphilis do not know that they have the disease or else believe they have recovered from it.—*Hygeia.*

Obituaries

DR. JAMES PUTNEY

Dr. James Putney, 79 years of age, dean of Kanawha valley physicians, died at Charleston on February 7. Death was due to heart failure.

Born at Malden, Kanawha County, in 1859, Dr. Putney was a member of a pioneer Kanawha valley family. He graduated from the College of Physicians and Surgeons at Baltimore (now the University of Maryland) in 1889, and that same year received his license to practice medicine.

For many years he was physician for the Chesapeake and Ohio railroad, and was associated with Doctors Fred S. Thomas and William W. Tompkins in the operation of the old Charleston General Hospital at Charleston. Dr. Putney remained in active practice of his profession until ten days prior to his death.

Always interested in the advancement of his profession, Dr. Putney was, in his earlier life, an active member of the Kanawha Medical Society, and held honorary membership in that society and the West Virginia State Medical Association at the time of his death.

The State Medical Association was the recipient of a valuable gift from Dr. Putney, when, in 1932 he donated for the Association Library a complete file of bound volumes of the *Journals of the American Medical Association* for the period from 1897 through 1930.

Dr. Putney never married.

ARISTOTLE

Aristotle was the first to notice that the irides of all new born children were slate-blue. He also approached the modern conception of the nature of light and vision, when he insisted that things are seen by influences emanating from them, rather than from rays emerging from the eye. He taught that the object perceived excites a motion and the motion excites a sensation in the organ of perception. He held that without light there can be no perception of the object. These theories were not only more advanced than any that preceded his time, but it was some hundreds of years before their general acceptance by a scientific world.—*Eye, Ear, Nose and Throat Monthly.*

County Society News

CABELL COUNTY

On February 2, the Cabell County Society had as its special guest Dr. Morris Fishbein, editor of the *Journal of the American Medical Association*, at a special testimonial dinner in the Hotel Governor Cabell for distinguished members of its group; Dr. Thomas W. Moore, past president of the Southern Medical Association; Dr. James R. Bloss, trustee of the American Medical Association; Dr. Walter E. Vest, president of the Southern Medical Association, and Dr. Ray M. Bobbitt, president of the West Virginia State Medical Association.

The Cabell County Medical Society held its regular monthly meeting at the Hotel Governor Cabell, Huntington, February 9, at which time its scientific program included a paper by Dr. Francis A. Scott on "Etiology and Treatment of Back Pains", and interesting case reports by Dr. H. D. Hatfield and Dr. W. C. Swann.

JAY L. HUTCHISON, *Secretary*.

KANAWHA COUNTY

Dr. Louis H. Douglas, Professor of Obstetrics, University of Maryland, was the essayist at the regular monthly meeting of the Kanawha County Medical Society, held February 14, in the Daniel Boone Hotel, Charleston. Dr. Douglas' paper was on the subject: "Analgesia in Obstetrics."

A. SPATES BRADY, JR., *Secretary*.

LOGAN COUNTY

Dr. Roy M. Bobbitt, president of the West Virginia State Medical Association, was guest speaker at the February 8 meeting of the Logan County Medical Society in the Appalachian Club Service Room, Logan. Dr. Bobbitt spoke on medical economic and legislative problems, and told how the officers of the State Association hoped county societies would cooperate in furthering the state-wide program.

The society's special committee to cooperate with Federal authorities in a federally-sponsored syphilis control project made its report at the February 8 meeting, indicating progress is being made toward getting the program underway.

J. W. CARNEY, *Secretary*.

MERCER COUNTY

Doctors Frank J. Holroyd, Lawrence Pace and J. I. Markell led the scientific discussions at the January 26 meeting of the Mercer County Medical Society in the Memorial Building, Princeton. Dr. Holroyd read a paper on "The Prevention and Modification of Measles", and Dr. Pace gave a case report on "Hydatidiform Mole", while Dr. Markell's paper was on the subject, "Chemical Peritonitis Due to Installation of Turpentine Into the Uterus (with case report)."

Two committees were appointed and announced at the meeting as follows:

Public Assistance Advisory Committee—Doctors R. O. Rogers, Albert H. Hoge, B. S. Clements and J. R. Vermillion.

Legislative Committee—Doctors J. I. Markell, Albert H. Hoge, E. W. Horton, R. O. Rogers, Frank J. Holroyd, and J. R. Vermillion.

The Mercer society accepted Doctors Henry C. Davis and J. Gordon Rennie as new members.

Following the scientific program and business meeting, the society was entertained at the home of Dr. J. R. Vermillion, Princeton.

O. G. KING, *Secretary*.

MONONGALIA COUNTY

"Some Practical Applications of Present Day Cardiology", was the subject of a paper read by Dr. R. J. Condry, Elkins, guest speaker on the program of the Monongalia County Medical Society at the regular February dinner meeting held February 7 in the Marine Room of Hotel Morgan, Morgantown.

CARL JOHNSON, *Secretary*.

OHIO COUNTY

Dr. Karl Kornblum, Professor of Röentgenology, Jefferson Medical College, Philadelphia, was the guest speaker for the February 10 meeting of the Ohio County Medical Society, his subject having been: "The Röentgen Diagnosis of Diseases of the Colon."

At the February 24 meeting of the Ohio County Society, Dr. H. Hudnall Ware, Jr., Associate Professor of Obstetrics, Medical College of Virginia, Richmond, read a paper on "Eclampsia."

Both meetings were held in the Solarium of the Ohio Valley General Hospital, Wheeling.

At a special meeting called for the purpose of considering the effects of pending legislation, the

Ohio County Medical Society voted unanimous disapproval of House Bill No. 255, commonly referred to as the "Faith-Healing Bill," and House Bill No. 273, relating to a tax on the use, storage or other consumption of tangible personal property. Following this action, the secretary of the society was instructed to address letters to the members of the House of Delegates giving expression to the society's unanimous opinion of these bills.

R. W. LUKENS, *Secretary.*

PARKERSBURG ACADEMY

Meeting at St. Joseph's Hospital, Parkersburg, on February 1, the Parkersburg Academy of Medicine elected the following members to the Academy Board of Directors: Doctors A. R. Lutz, H. A. Giltner, E. B. Holmes, and James L. Wade.

The Academy approved and furthered a plan for the conduct of a program contemplated to provide tonsillectomies for 100 children in the Parkersburg area. Under the plan agreed upon, the Academy membership would administer the anesthetics and provide the surgical service as charity, while the hospitals were to be reimbursed at the rate of $8.00 per child.

After approving the appointment of a special publicity committee on the part of the Academy, and a discussion of legislation, the Academy passed a resolution endorsing House Bill No. 117, requiring a physical examination as a prerequisite to the issuance of marriage licenses.

Dr. A. M. Jones, Joan M. Goebel, and R. D. Lattimer were appointed to a special committee to confer with local public health authorities on public health problems.

A. C. WOOFTER, *Secretary.*

RALEIGH COUNTY

In addition to installing new officers, the Raleigh County Medical Society, at its January 19 meeting in the Beckley Hotel, Beckley, reviewed a "Symposium on Tuberculosis", presented by Dr. G. E. Gwinn and Dr. V. L. Kelly of Pinecrest Sanitarium.

Dr. J. Edwin Wood, Jr., Professor of Internal Medicine at the University of Virginia, was the society's guest speaker at its February 16 meeting. His lecture subject was "Recent Advances in the Study of Hypertension and Their Influences on Therapy."

E. NEWTON DUPUY, *Secretary.*

WETZEL COUNTY

Dr. K. M. Hornbrook was elected president of the Wetzel County Medical Society at the January 24 meeting of the society in New Martinsville. Other officers elected were: Dr. Normal G. Angstadt, vice president, and Dr. E. C. Blum, secretary-treasurer.

Reports on the Annual Conference of County Society Presidents and Secretaries, held at Charleston January 6, were given by Dr. L. P. Stanley, immediate past president, and by Dr. Blum, secretary.

Dr. R. F. Miller, Paden City, and Dr. James F. White, Hundred, were elected to membership in the Wetzel Society.

E. C. BLUM, *Secretary.*

DISABILITY COMPENSATION

Compensation for permanent disability after injury should be on the basis of a lifetime, rather than restricted by time or money limitations, Walter G. Stern, M.D., Cleveland, points out in *The Journal of the American Medical Association* for January 28.

In only thirteen states is lifetime the basis for such compensation, Dr. Stern remarks in his review of the conclusions of the International Association of Industrial Accident Boards and Commissions.

Permanent partial disability should be evaluated in percentages of permanent total disability. Both partial and total disability should be estimated according to factors which will vary from case to case. For example, the examining physician must consider age, type of occupation, presence of pain, morale and other psychic factors, as well as preexisting disease made active by the injury or disease which results from the injury. He must also notice such factors as injury or atrophy of soft parts, circulatory changes and swelling, injuries to nerves and tendons and nonunion of fractures.

The federal and all state governments (except Arkansas and Mississippi) now have laws for payment of compensation to injured employees, and practically all have adopted fixed schedules of percentage of loss for certain fixed disabilities.

Uniform compensation laws must be effective in all the states before the physician can properly estimate disability, Lionel D. Prince, M. D., San Francisco, comments in discussing Dr. Stern's paper.

Sound as heard by the ear has two properties; namely, pitch and intensity.—*Hygeia.*

Public Health

The material in this monthly column is compiled and furnished by the West Virginia State Health Department

RECENT FINDINGS ON RABIES

The number of human deaths, due to rabies, recently reported in West Virginia should focus the attention of public health agencies, the medical profession and the general populace upon means for eradication of this constant threat to human life and valuable domestic animals.

During the past five years, 1,643 heads of animals (dogs, cows, sheep, etc.) suspected of rabies have been examined by the State Hygienic Laboratory. One hundred and eleven of these were unsatisfactory for examination because of destruction of brain by clubbing, gunshot, or putrefaction; 63.7 per cent of the remainder were proven positive by laboratory examination. Annual spot maps showing location of these infected animals indicate that the principal centers of infection in this state are in Kanawha and adjoining counties, although the disease in animals appears to be spreading throughout the state.

Twenty-one deaths of humans stricken with rabies in West Virginia have been reported to the State Health Department in the past six years. Excellent recommendations for treatment of persons bitten by dogs, as well as for means of eliminating rabies from the dog population, are given in "Rabies —A Report of Twelve Cases, With a Discussion of Prophylaxis," by Blatt, et al, Journal American Medical Association, 1938, 111, No. 8, page 688. In administering the prophylactic treatment, the criteria of a good antirabic vaccine preparation should be remembered:

1. It should be unable to produce rabies—that is, it should contain no live virus.
2. It should be as pure as possible to minimize possibility of paralytic shock.
3. It should have a strong protective effect against live virus.

A disinterested study of rabies vaccines now on the market is reported in the American Journal of Public Health, 1936, 26, p. 1207. This study is from the laboratories of the Rockefeller Institute of Medical Research, and discusses the safety of and protection conferred by various antirabic vaccine preparations.

It is to be hoped that as the public becomes informed of the serious rabies problem in West Virginia, public sentiment will be aroused to efficient control of the dog population, so as to eradicate this disease at its source. There is a very definite need not only for enforced legislation to reduce rabies in the dog population, but also for means of keeping those animals by whom humans have been bitten under experienced observation for a sufficient period to determine the hazard to the exposed individual.

NEUROSYPHILIS

With the State Department of Health, the State Board of Control, and the Department of Public Assistance cooperating, plans are being developed whereby medically indigent patients with neurosyphilis can be treated with malaria at one of the State emergency hospitals.

Case selection will be made by the director of the Bureau of Venereal Diseases of the State Health Department, with the program, under his direction, to be developed cautiously by reason of the fact that only a limited number of cases can be treated during the early stages of the new setup.

In setting up requirements, the State Health Department has instructed health officers to examine indigent patients in their care as promptly as possible, in each instance making a complete physical examination with emphasis on lung, heart and kidney conditions. Urinalysis, blood test and spinal fluid examinations are required laboratory procedures, and no case will be given consideration for treatment under the new neurosyphilis program unless the spinal fluid examination and Wassermann or Kahn tests have been made.

Health officers have been instructed specifically to discuss the treatment procedure with prospective patients, and to obtain definite statements from them as to whether or not they are willing to submit to the malarial treatment.

REPORTING OF BIRTHS

The State Department of Health has found that although births are supposed to be registered within ten days of the time they occur, over one-third of the births in West Virginia are not registered within that time limit. In four counties, tardy reporting is as great as one-half of the total births. In only seven counties is the delinquency percentage under one-fifth of the total, Ohio county average tardiness of only five per cent being the best for the entire state.

In addition to being a source of worry to the parents of children who do not receive their notification as promptly as they should, tardy registration makes for possible criticism not only of the attendant, but, frequently, of the State Health Department. Furthermore, delayed registration also increases the danger that registration may be forgotten completely, thus causing possible difficulty in the later life of the child whose birth should be registered.

As a result of the birth registration campaign conducted several months ago, the Health Department announced, more than 60,000 requests for birth certificates have been received, meaning that over three per cent of the entire population of the State have been sufficiently "awakened" to request certificates.

BOOK REVIEW

PROFESSIONAL LICENSURE IN WEST VIRGINIA

The Licensing of Professions in West Virginia. By Frances Priscilla DeLancy, Instructor in Political Science, West Virginia University, Morgantown. Cloth. Pp. 197. Price, $2.25. Chicago. The Foundation Press, Inc., 1938.

We always greet with interest and pleasure the publications of West Virginia authors, and especially do we welcome this book which was prepared and submitted "in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Graduate School of Arts and Sciences of Duke University." The study, while it relates specifically to West Virginia, covers the general field of professional licensure as well. Dr. DeLancy goes carefully into the underlying philosophy of licensure and its history, specifically as to development within West Virginia. The initial chapter, "The Characteristics of a Profession," is especially interesting and brings out well the difficulty one has when an exact definition of the word profession is attempted. The legal aspects of licensure are well presented and the necessity, from the standpoint of the commonweal, for the abandonment of the laissez-faire system in the professions is clearly shown. The guild trend is emphasized and professional integration is discussed. While integration has made considerable headway in the legal profession in America, as Dr. DeLancy shows, this reviewer remembers very distinctly the scant consideration the subject received when proposed in the House of Delegates of the American Medical Association some years ago. The medical profession is discussed more at length than are the other licensed vocations, "partially because," the author says, "of its important position in the professional world and partially because the public and the practitioners have registered more interest in the state control of the healing arts."

Chapter three discusses the present licensing provisions for the various professions, types of licenses, initial licensure, reciprocity, discipline of licentiates, and revocation, and the succeeding chapter is devoted to the administration of professional licenses, including the nature, function and legal aspects of boards, as well as the nature, function and legal aspects of professional associations. The final chapter is devoted to trends in licensure and incidentally to trends in the professions themselves. We are, of course, much interested in her prophecy that the medical profession will finally "attain complete guild status."

All in all, the book is distinctly worthwhile both to the professional person and to the layman who depends so largely now-a-days upon professional advisers and professional services. It should be a *sine qua non* for each member of the different state licensing boards. Certainly, this reviewer feels that he, as a member of one of them, has been much benefitted by Dr. DeLancy's excellent presentation of the subject.

STUDY IN GEORGIA

"Satisfactory progress in public health depends on close cooperation between practicing physicians and dentists and the official health departments, local and state, and through these the health agencies of the federal government," says *The Journal of the American Medical Association* for February 18.

"An interesting example of cooperation between health officers and physicians in a series of meetings in the state of Georgia sponsored by the several county medical societies and the county boards of health, with the U. S. Public Health Service cooperating through the Georgia Department of Public Health. Ten cities were chosen for these meetings: Rome, Washington, Americus, Thomasville, McRae, Griffin, Waycross, Swainsboro, Lagrange and Gainesville.

"The meetings brought to the rural practitioner in all parts of the state the latest information on the four subjects, syphilis, the infant, obstetrics and laboratory aids. Through such discussion of common interests in public health, understanding is furthered and progress is made."

Woman's Auxiliary

MARION COUNTY

The Woman's Auxiliary to the Marion County Medical Society held a meeting on January 31 at the Hotel Fairmont, Fairmont, West Virginia. Mrs. J. R. Tuckwiller, president elect, presided at the meeting. Twelve members were present. Mrs. Joseph Rosier gave a review of the book "All This and Heaven Too." The February meeting will be held on the 28th at the Hotel Fairmont.

MRS. C. M. RAMAGE, *Secretary*.

KANAWHA COUNTY

The Woman's Auxiliary to the Kanawha Medical Society met on January 10, 1939 for a one o'clock luncheon at the Tally Ho. Mrs. Archer Wilson, president, presided and there were fifty-one persons attending. Mrs. M. L. Bonar talked on the subject of "Socialized Medicine in Europe." Mr. Joe W. Savage also presented a talk on the "Outstanding Qualities of the *Hygeia* Magazine."

The next meeting is planned for February 14th at the home of Mrs. Philip Preiser.

MRS. WM. POLSUE, *Secretary*.

PARKERSBURG AUXILIARY

The Woman's Auxiliary to the Parkersburg Academy of Medicine held their January meeting on the 17th at the Chancellor Hotel, Parkersburg. Mrs. Lattimer, president, presided and there were twenty-four members present. Tickets for the President's Ball were given out.

MRS. A. M. JONES, *Secretary*.

FRACTURES OF ARM

The most difficult fractures to treat are those of the arm, just above the elbow, George J. Garceau, M. D., Indianapolis, points out in *The Journal of the American Medical Association* for February 18.

The physician should consult with an orthopedic or bone surgeon in difficult cases of such fractures, Dr. Garceau says, basing his paper on an analysis of 133 fractures of this type. These fractures occur most frequently in children. Immediate reduction (alinement) of the fracture promises good results. Delay makes reduction more difficult because the soft tissues become hard and the muscles and tendons contract. With delay it may become necessary to open the elbow and reduce the fracture. This slows up the recovery.

Neighbor Journals

CANCER AND CIVILIZATION

One of the most frequent misconceptions with regard to the origin of cancer is the belief that it is related to civilization. For years the statement has been current that savage races are practically free from cancer. The reasons for this misconception are obvious. The sick savage rarely comes under formal medical attention, and if he does, the facilities for investigation are such that unless the disease is far advanced or superficial, the chance of diagnosis is relatively slight.

Undoubtedly there are marked variations in the incidence of different types of cancer, but in general the cancer rate tends to maintain a fair degree of constancy in different localities where diagnosis is accurate and medical attention readily available. In most regions where interest in cancer has been developed, the death rate tends to lie between 110 and 140 per 100,000. We know now that the Chinese have their full share of cancer, with primary cancer of the liver one of the very prominent forms. We know that the natives of India are frequent victims of cancer of the mouth and upper respiratory passages. We know that skin cancer is not infrequent among many of the primitive peoples, particularly in swampy regions where leg ulcers are prevalent and neglected.

One of the most careful recent studies of the incidence of cancer among primitive peoples is that of Bonne and his associates. Among most primitive people there is no worthwhile evidence as to the incidence of any disease. This is in large part due to the failure of the savage to recognize internal disorders as disease, tending rather to regard them as the effects of the presence of an evil spirit.

If we take the hospital records in Batavia, Singapore or Manila, the liver is the outstanding site of cancer. Virtually none of these cases would be recognized had the patients not died in large hospitals where autopsies are performed. Bonne and his co-workers estimate the incidence of cirrhosis of the liver in the Dutch East Indies as 6.9 per cent for male Malays; this is undoubtedly a factor in the frequency of carcinoma of the liver. In Batavia, among the Malays cancer of the stomach does not appear among the ten most common forms of cancer although among the Chinese and Japanese its incidence is nearly as high as that in the Western

hemisphere. The Malays, however, do show a high incidence of skin cancer and of malignant tumors of the cervical lymph nodes.

When the native population in the Far East is carefully studied, it becomes apparent that, once adjustments are made for age and the high incidence of such infectious diseases as cholera and plague, the incidence of cancer differs but little from that in European or American communities. On the other hand there is material variation in the primary sites of the disease.—*New England Medical Journal.*

DOGS IN CALIFORNIA

"Look into a dog's eyes," says Leo Carillo, "and you will find no greater love, faithfulness, and sincerity." This gush of pseudosentimentality on the part of Mr. Carillo, motion picture actor, was occasioned by his support of California's antivivisection proposal.

We wonder if Mr. Carillo and the rest of his kind have ever really looked into the eyes of a baby —a human baby, we mean, not a pup. If they can't find something there that is more appealing than the "love, faithfulness, and sincerity" of a dog, then they should consult a good ophthalmologist at once.

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Despite appeals by persons as well known as Mr. Carillo, despite the support of one of the country's leading newspaper chains, and despite aggressive and expensive promotion, California's Initiative Proposition No. 2 (the State Humane Pound Act)—an antivivisection proposal so written as to confuse the voters concerning its real purpose—was rejected on November 8, 1938, by a vote of more than two to one.

It is not necessary in this journal to outline the advantages of vivisection. All physicians are aware of them. Newspapers like *The New York Times* and magazines such as *Life* have clearly presented to the public the advantages of animal experimentation.

The important lesson for physicians and medical societies is that the fight against this proposal was won by hard work—but it was won. The fight was lead by the California Medical Association. In every

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TUBERCULOSIS ABSTRACTS

(Continued from page 139)

People to whom tuberculosis is a household word have not heard of bronchiectasis, although physicians recognize it as, next to neoplasm, the most hopeless pulmonary disease as far as restitution of the diseased part of the lung is concerned. Great concern is felt when a child aspirates a foreign body, considerable attention is paid nowadays to impairments of the respiratory function from allergic causes, but the danger of the slow and continuous drainage of infected material into the bronchial passages and of the resulting bronchitis is underestimated. And yet, it is the chief causative factor of bronchiectasis, especially of the extensive and life-threatening variety. We should venture to say that in proportion to the growing recognition of the rôle which chronic sinusitis has in this disease, its occurrence should decrease. Examination of the sinuses, including a röentgenogram, should be suggested to the parent and guardians of all children in whom no other cause of a chronic cough can be found.

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SOLOMON, P.; MITCHELL, R. S. AND PRINZMETAL, M.: The Use of Benzedrine Sulfate in Postencephalitic Parkinson's Disease —*J. A. M. A.*, 108:1765, May 22, 1937.

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The drier regions of the country offer hope to those who have, or are threatened with, chronic nonspecific infections of the respiratory tract.

LUNG ABSCESS

While bronchiectasis is characterized by chronicity of events, lung abscess nearly always begins as an acute involvement. Its chronicity occurs from the lung's inability to rid itself promptly of infected material, while the bronchiectatic lesion is largely produced by the very process of chronic elimination. It can be estimated that an abscess becomes chronic in somewhat more than one to two months of duration of illness. The average duration until death or recovery in this series of cases was slightly over four months. Etiological factors were equally divided between aspiration from extrapulmonary infections and other causes. Symptoms depend upon the virulence of the invading micro-organisms and the local tissue response but chiefly upon the degree of bronchial connection with the abscess and the resulting possibility of spontaneous drainage. Physical findings comprise the whole array of pulmonary signs.

The primary aim in treatment is to assure adequate drainage of the abscess. If this cannot be done promptly, surgical drainage should not be delayed. On the other hand, most abscesses which refuse to heal spontaneously, quickly become localized and can be operated with greater safety than in the acute stage. Postural drainage by using a bed which can be tilted in all directions has been used successfully by the authors. The mortality was 50 per cent.

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NEPHROPEXY*

By GORDON F. McKIM, M. D.
Cincinnati, Ohio

THE subject of altered renal mobility has received much partisan discussion during the past few years, and even today, many urologists shrug their shoulders when the subject is presented. From our own personal experience, however, with the surgical results obtained in selected cases by a procedure which I shall later demonstrate, we are satisfied that many lives destined to invalidism can be changed to lives of usefulness.

I will not monopolize your time by enumerating details concerning statistics of detailed case histories, but will try to emphasize some of the salient points and evaluate the importance of the rôle played by certain mechanical factors in the production of symptoms of nephroptosis.

The kidney is a mass of glandular tissue with its renal artery and vein constituting its pedicle and a drainage system comprised of the renal pelvis and ureter. This mass of renal tissue is surrounded by a thin, but somewhat dense, nonelastic, fibrous capsule, and is embedded in and cushioned by fat in its own fascial compartment. Within this compartment the ureter courses to a point about one cm. below the usual level of the lower pole of the kidney where it becomes attached to the anterior layer of the perinephric fascia. (Fig. 1) This fascial compartment is formed by the division of the deep fascia at the midaxillary line into two layers. One layer passes posteriorly to the kidney to fuse with the fascia of the bodies of the lumbar vertebra; the other passes anteriorly to come into contact with the fascia of the midbody line, and to fuse with that from the opposite side. Above, these two layers fuse, and below, they come into very intimate contact. (Fig. 2)

Immediately in front of this anterior layer of fascia, on the right side, is the duodenum,

THE AUTHOR

Dr. Gordon Frank McKim, Cincinnati, Professor Urological Surgery at University of Cincinnati, School of Medicine; diplomate American Board of Urology; American Association of Genitourinary Surgeons; American Urological Association; American College of Surgeons.

*Read before the General Scientific Session, West Virginia State Medical Association, White Sulphur Springs, West Virginia, July 13, 1938.

which in this location is completely retroperitoneal, and is rather intimately attached to this fascial layer. The hepatic and splenic flexures of the colon are also in intimate relationship with the kidneys. (Fig. 3) Before considering the changes in these normal anatomic relationships occasioned by altered or excessive renal mobility it is well that we definitely understand the real cause of renal colic. We believe that it is logical to regard the

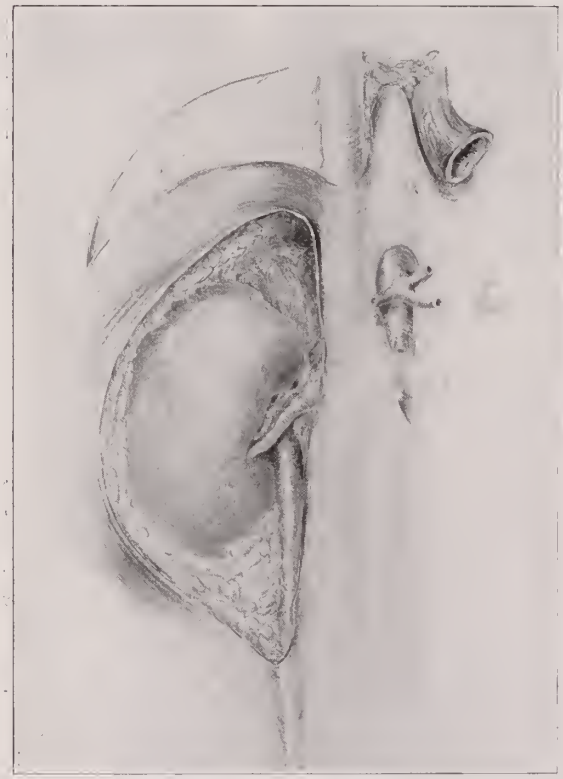

Fig. 1. Kidney in normal position with the anterior layer of perinephritic fascia removed.

basic cause to be an increased intracapsular tension within the kidney, basing our opinion on the very important fact that although there is only one entrance of fluid into the kidney, the renal artery, there are two separate and distinct exits, the renal vein and the ureter, and that interference with the efficiency of either of these two exits will produce the increased intracapsular tension necessary to cause renal colic. The most severe case of renal colic encountered in our experience was due to an aneurysm of the abdominal aorta in the region of the celiac axis causing pressure on the renal veins with bilateral attacks.

When renal mobility is increased for any reason whatsoever, nature attempts to arrest this movement by the absorption of the intracapsular fat and its replacement by fibrous adhesions between the renal capsule and perinephric fascia. As renal mobility continues to increase, the kidney will follow the plane of the posterior body wall, and the lower pole will be rotated inward and medially. The weight of the low, rotated kidney is to a great extent transferred through its partially twisted and lengthened pedicle to the splanchnic area, and its low position predisposes to a kinking of the ureter. (Fig. 4) The anterior layer of the perinephric fascia will be pulled downward resulting in a definite displacement of

Fig. 2. Kidney in normal position showing the anterior layer of perinephritic fascia.

the midportion of the duodenum. (Fig. 5)

Thus there are four factors that may be of importance in the production of symptoms:

(1) The tension and torsion of the renal pedicle usually causes a sensation of heaviness and weight in the side affected and frequently interferes with the return flow of blood through the renal vein producing renal colic in patients in whom there may be no clinical evidence of renal stasis.

(2) The excessive sympathetic stimulation, as a result of the constant pull upon the splanchnic area, may manifest itself in many ways, and probably plays an important rôle in the production of the dyspeptic symptoms so frequently found in these cases. The frequency of intense headaches and of pain that is referred to a point midway between the scapula may also result from this excessive stimulation.

(3) The sagging of the perinephric capsule with the resulting pull of the midportion of the duodenum is a contributing factor in the production of gastrointestinal symptoms, while the close proximity of the splenic flexure of the colon to the left kidney may explain the frequency of that symptom complex called "colitis" associated with a low left kidney.

Fig. 3. The normal relationship of the duodenum to the kidney and perinephritic fascia.

(4) Ureteral kinking can be demonstrated in many normal individuals by retrograde pyelograms, and ordinarily is of no significance, but associated with nephroptosis it is an additional factor in the production of renal stasis, and we feel it predisposes to renal infection.

Two types of altered renal mobility are recognized, the asymptomatic and the symptomatic, and we have chosen as a basis of discussion a classification of this latter group based entirely on symptomatology, although the extent of alteration in mobility in each of the following groups is rather constant.

Group I is characterized by attacks of very acute excruciating pain, simulating renal colic; the other symptoms of nephroptosis are seldom present. This type is found almost as frequently on the left as on the right side. Very often the patient can date the onset of his symptoms from the time of some unusual physical exertion or an accident. Examination may show very little increase in vertical movement, but occasionally shows some evidence of rotation about the renal pedicle. (Fig. 6) Diagnosis may be extremely difficult and is dependent almost entirely upon the elimination of all other causes of renal pain. With patients of this type, a rather tight adhesive band three to four inches wide

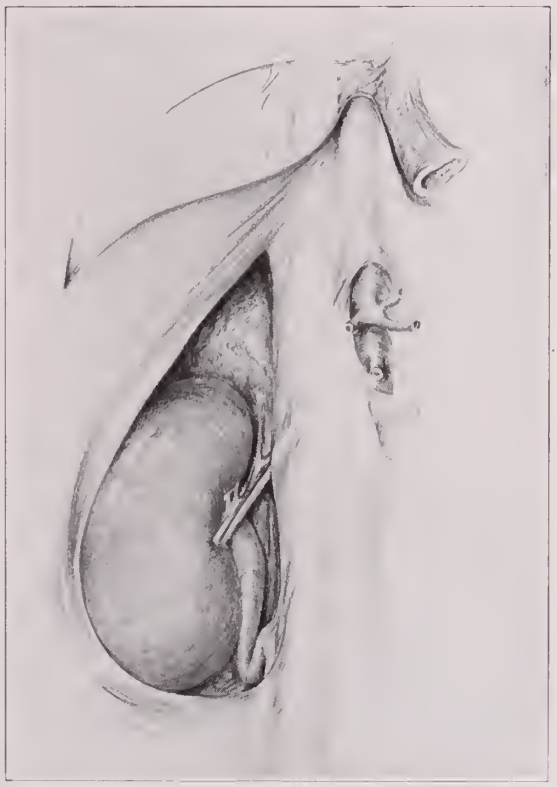

Fig. 4. The kidney in low position with the anterior layer of perinephritic fascia removed. The pull and tortion of the renal pedicle is shown.

extending about two-thirds around the body on the affected side is applied immediately below the kidney, with the patient in a recumbent position. This band is kept in place for several weeks. Even in the cases with moderately severe pain it is frequently successful, but in those with violent attacks of pain operation is usually necessary. Four and one-half per cent of our operative cases are

Fig. 5. The kidney in low position. The extent of the alteration in the position of the duodenum by the drag of the perinephritic fascia is illustrated.

of this type. They have all had a very satisfactory result.

Group II is characterized by marked gastrointestinal symptoms suggesting pyloric or duodenal obstruction. Occasionally these are so severe that they have been the cause of previous operations, such as appendectomy, cholecystectomy, etc. A sensation of heaviness and weight in the side is always complained of, particularly in the afternoon or evening or after unusual physical effort. The patients have rather frequent attacks of acute renal discomfort, but not necessarily colic. Examination shows a kidney with an increase in vertical movement of about one and one-half inches, and some evidence of urinary stasis. (Fig. 7) In this group all types of palliative procedures have in our experience proven uniformly unsuccessful. While there have been disappointments in this group of

Fig. 6. Type 1.

Fig. 7. Type 2.

cases, there have also been some most gratifying results. An example of the latter was a neurasthenic student, aged 22, weighing 112 pounds, who gave a history of five years' duration during which time he had had in sequence a gastroenterostomy, a cholecystec-

Fig. 8. Type 3.

Fig. 9. Type 4.

tomy, an appendectomy and 17 ureteral dilatations, each of the latter having been followed by some relief for a week or so. Six months after nephropexy he resumed his studies and athletics and weighed 152 pounds.

Approximately 20 per cent of our operative cases are in this group. Of the 48 individuals in this group, 17, or 37.6 per cent, had a persistence or recurrence of some of their symptomatology for more than six months. There are only nine who were not completely well after one year; four of these, one a bilateral case, were improved, but still have moderately severe dyspeptic symptoms and some discomfort in the region of the kidney. In five, the symptoms remained so severe that nephrectomy was performed.

Group III is characterized by occasional attacks of rather severe renal colic and a marked tendency toward a recurrent pyelitis and hematuria. Chronic dyspeptic symptoms are usually present. There is in these cases a definite tendency toward neurasthenia. Examination shows the kidney to have a movement of from two and one-half to three inches, and frequently gives evidence of urinary stasis. (Fig. 8) It is in this group, which comprises 48 per cent of our series, that we have had the most uniformly satisfactory results. In only five instances has there been, after one year, a persistence of any of the symptoms. With the exception of one case with intermittent hematuria, these were of a rather minor character. Although there were 11 cases in this series in which, at the time of nephropexy, a pyelolithotomy was also done, we have no record of a recurrence of renal calculi. Renal infection, which was present in 18 cases, was completely cleared up within eight months in all except two cases. The one surgical death in our series occurred in a case of this type and was due to a staphylococcic septicemia. We do not advise the use of palliative procedures if surgical repair is possible, as they are seldom of any permanent value.

Group IV is characterized by more or less constant heaviness and dragging in the side, and usually has symptoms suggestive of chronic renal infection. If these symptoms are on the right side, chronic dyspeptic symptoms of a mild type are usually present. If on the left side, and the patient has symptoms of a mucous colitis, it is suggestive that this nephroptosis may be one of the etiologic factors. We have also had five cases in this group with the symptoms predominant on one side and the pathology on routine examination was found on the opposite side. Examination shows a very low kidney and usually a dilated and infected renal pelvis. Calculi are frequently found. (Fig. 9) Twenty-eight per cent of our operative cases were of this type. The postoperative results in this group have been very satisfactory, although the chronicity of the urinary infection and the hydronephrosis that is usually present have in some cases required a rather long period of postoperative therapy. In 13 instances renal calculi were removed at the time of the nephropexy, and there were two cases of associated solitary cysts in which resection was done. In one case the calculi have recurred.

DIAGNOSIS

It is unnecessary to discuss the details of diagnosis, other than to state that a proper study of these cases requires that ureteral catheterization and stereopyelograms be made in the upright position.

THERAPY

The type of therapy, operative or otherwise, to be advised in any particular case requires the utmost cooperation of the patient's physician, the gastroenterologist, the radiologist, and the urologist. The decision in favor of surgical intervention should be made only when it is determined that the subjective symptoms are a definite handicap to the patient's physical welfare and only when the operation is not contraindicated by genitourinary pathology which cannot be relieved by nephropexy or by coexistent pathology in other organs. Our experience coincides with that of most urologists in that the presence of obstructive ureteral lesions due to true strictures is very rare, but aberrant renal arteries have been frequently found.

POSTOPERATIVE RESULTS

The vast majority of unsatisfactory postoperative results are due to one or more of the following causes: (1) Failure to restore

the kidney to its proper position. (2) The production of excessive trauma about the renal pedicle or ureter at the time of operation. (3) Failure to recognize coexistent pathology of the kidney or adjacent organs.

While in certain groups the percentage of our unsatisfactory postoperative results may seem to be somewhat high, we believe that it should not be regarded as a criticism of the surgical technique of nephropexy, but of the manner in which that technique was applied to the particular case, and that by proper study these unsatisfactory results can be gradually eliminated. We feel that a study of the more recent cases of our series will confirm this suggestion.

HERNIA IN INFANCY*

By C. TRUMAN THOMPSON, M. D.
Morgantown, West Virginia

IN THE surgery of children hernia plays an important rôle, first, because of its frequency; second, because of its etiology; and third, because it is more amenable to treatment and ultimate cure, either by supports or operation, than in the adult.

Hernia in children is congenital (the exception to this rule is rare). It is a developmental defect just as harelip, cleft palate, etc., and the causes which produce either are practically the same. Defective development, due to a low vital index, explains the frequency with which hernia is associated with other congenital deformities. Note its special frequency among the weak, premature and degenerate; also its hereditary nature, occurring in families where there are other stigmata of degeneration.

Either failure to close the openings during fetal life or weakness at these points due to late closure is the rational explanation of the hernias of childhood. Accepting the statement that all hernias are congenital, the actual herniation is produced by some increase in intra-abdominal tension forcing abdominal contents into a potential hernial sac. In the event this occurrence does not take place it seems quite reasonable that either spontaneous recovery may ensue and a complete cure be effected by nature, or the hernia may still remain potential and not become clinically present until some strain in later life.

THE AUTHOR

Dr. Carl Truman Thompson, Morgantown, West Virginia; graduate University of Maryland School of Medicine, Baltimore.

Many of these hernias are observed within the first few days of life while others may occur within the following two or three months. Potential hernias as stated may become actual, due to increase in intra-abdominal tension especially from excessive crying of a child or straining at stool. The sac may contain any of the abdominal viscera. Incarceration is quite the rule in infantile hernias, and occasionally strangulation may occur. The symptoms of this accident are chiefly fretfulness and excessive crying. Occasionally vomiting may occur due either to excessively vigorous crying or an actual obstruction, through actual kinking of the intestine. It has been stated that strangulation is the result of crying of the child, but it would seem more logical to assume that the crying was a result, rather than a cause.

TREATMENT

Umbilical Hernias: The first indication in the treatment of infantile umbilical hernia is the elimination of all factors which are found to be causing increased intra-abdominal pressure, such as disturbance of digestion, difficult micturition, constipation, phimosis and coughing. It has been found that many obtain complete relief by the application of adhesive bands in such a manner that the skin along

*Read before the Monongalia County Medical Society, Morgantown, West Virginia, April 6, 1937.

the median line is folded inward so as to overlap the ring and thus form an excellent support for maintaining reduction. To be successful this treatment must be continuous. Whenever the adhesive straps are removed, always maintain the hernia reduced by pressure with the fingers until new retention straps are applied. A single protrusion will destroy what it has taken weeks to accomplish. After a period of several months the relaxed ring generally contracts, with elimination of the hernia. Operative treatment is indicated in irreducible and strangulated umbilical hernias. It is also indicated if the palliative treatment fails after six to ten months' application. The type of operation varies with the individual hernia but the approach through a small curved incision below the umbilicus with close ligation of sac and approximation of edges of the ring is usually the method of choice.

Inguinal Hernias: The operations of Ferguson and Andrews-Bassini have been used chiefly in the inguinal region. Success is dependent on high ligation of the hernial sac. The use of a truss does not seem to be logical. Its application is beset by many hazards as the child is unable to cooperate in retaining it properly. Excoriation may result from friction and it is quite possible that incarceration and possible strangulation may result from the use of a truss. In the event that this does occur with excoriation at the site of the hernia and surgery becomes necessary, a very difficult technical procedure is necessary because of infection already present at the line of incision. In Blevins' series there were 26 infants from three weeks to 42 months of age treated surgically without a death in the series and with no recurrence. From this type of results it would seem that we are justified in stating that the treatment of hernia in infants is quite satisfactorily and safely handled by the application of radical surgical procedure.

CASE REPORTS

1. Diagnosis of Incarcerated Inguinal Hernia: Baby R., born February 5, 1933. Normal spontaneous delivery at full term. Was brought to my office on March 20, 1933, and the mother stated that the child cried and strained a great deal. A reducible right inguinal hernia and a small hydrocele were noted. After reduction the straining would cease but as soon as the hernia descended again into the scrotum the crying and straining would start again. A yarn truss was used in an attempt to keep reduction but to no avail. On March 27, 1937, the child was taken to the County Hospital with an incarcerated hernia. It was operated (Ferguson method), skin closed with silk and sealed with collodion. Discharged from the hospital on April 1, 1933. Stitches removed on April 6, with healing by primary union. Examined on April 5, 1937, no recurrence.

2. Diagnosis of Strangulated Inguinal Hernia: Baby M., a premature infant, born December 14, 1936. Prematurity due to partial premature separation of the placenta. Weight at birth, four pounds, four ounces. On the afternoon of January 5, I was called to see this baby, mother very much excited, had noticed a lump in the right groin. Baby was very fretful and straining was again the most noticeable symptom. At this time the hernia did not extend into the scrotum. After gentle taxis the hernia was released with immediate cessation of the crying and straining. On January 23, hernia became incarcerated and taxis was attempted with no results. Operation was advised. Child was taken to the City Hospital and operated upon. Again the Ferguson procedure was carried out. A loop of bowel, dark red in color, was found in the sac. Baby started nursing the next morning, and vomited only once. Discharged from the hospital on January 27, stitches removed on January 29, healing by primary union. No recurrence to date, although the umbilical hernia which was also present at the time of strangulation of the inguinal hernia is difficult to manage.

414 High Street.

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THE EFFECT OF PULMONARY EMPHYSEMA ON THE HEART*

By HORACE MARSHALL KORNS, M. D.
Iowa City, Iowa

THE AUTHOR

Dr. Horace Marshall Korns, Professor Theory and Practical Medicine at State University of Iowa College of Medicine, Iowa City; graduate Western Reserve University School of Medicine, Cleveland; diplomate of American Board of Internal Medicine; Central Society for Clinical Research; American Society for Clinical Investigation.

For more than a hundred years the problem presented by the so-called "emphysema heart" has defied solution. The obscurity which has long veiled the pathogenesis of emphysema itself naturally multiplied the number of factors which had to be considered, and it is not surprising that the older literature on the subject is a voluminous and monotonous chaos of conflicting theories, unsupported opinions, fallacious reasoning, and contradictory observations.

THE RIGHT VENTRICLE

Because the anatomic changes in emphysematous lungs were well understood long before much was known about the dynamic consequences of the disease, and because hypertrophy of the right ventricle and sclerosis of the pulmonary artery and its branches were frequently observed at necropsy in cases of severe emphysema, the first theory to spring up was that emphysema made the passage of blood through the lungs more difficult, and therefore increased the work of the right ventricle. It will be recalled that the normal alveolus is surrounded by a thick network of capillaries which run a tortuous course and bulge prominently into the alveolar lumen, whereas in the emphysematous lung the capillaries are much reduced in number, their network is thin, they are comparatively straight and often end blindly, they do not bulge into the alveoli, and their lumina are abnormally large.[1 2 3] Therefore, it seemed reasonable to assume, and the unproved assumption is still being perpetuated by most modern text-book writers, that the loss of capillaries was sufficiently widespread to produce pulmonary hypertension. As early as 1876, however, the important experimental observations of Lichtheim[4] cast considerable doubt on the obstruction theory. The significance of Lichtheim's work, which was subsequently confirmed both by Gerhardt and Tigerstedt, has not always been recognized by those who have busied themselves with this problem. He showed that the minute-volume blood flow through the pulmonary circuit of the dog is unaffected by complete obstruction of three-fourths of the pulmonary vascular bed, and that the removal of one entire lung raises the pressure in the pulmonary artery only a few millimeters of mercury. Even before Lichtheim, the obstruction theory was questioned by such excellent observers as Traube[5] and Hertz,[6] and today it is regarded with open suspicion.

The proponents of the obstruction theory have never succeeded in giving a satisfactory explanation of the numerous and conspicuous exceptions to the supposed rule that emphysema causes selective hypertrophy of the right ventricle. It is astonishing when one sees, side by side on the same autopsy table, two examples of the most extreme bullous emphysema, and then finds that the heart in one case is the seat of pronounced right ventricular hypertrophy, and in the other is perfectly normal. As Kountz, Alexander, and Prinzmetal[7] have shown, these exceptions occur in experimental as well as human em-

*From the Department of Internal Medicine, State University of Iowa. Read at the meeting of the West Virginia Heart Association, White Sulphur Springs, West Virginia, July 11, 1938.

physema. Their incidence covers a wide range, from 35 per cent in 20 cases which I studied, to 70 per cent in Einhorn's series.[8] How fortunate it would be if the left ventricle enjoyed such a high immunity to the effects of systemic hypertension!

Some of the attempts to account for the nonoccurrence of right ventricular hypertrophy in emphysema may be worth mentioning. Eppinger,[2] in 1876, found extensive anastomoses between the pulmonary and bronchial systems in cases in which the right ventricle was normal, and no such communications in those in which it was hypertrophied, but he was unable to explain why these collaterals form in some cases and not in others. Hofbauer,[9] who pointed out (1925) that the low position occupied by the diaphragm in advanced emphysema tends to diminish venous return and thus to lighten the work of the right ventricle, neglected the obvious objection that this was no more likely in one case than another. In 1928, Loeschcke[3] stated that if the right ventricle is not hypertrophied it can only mean that an insufficient number of capillaries has been destroyed, regardless of how severe the emphysema may seem to be.

CARDIAC HYPERTROPHY

A question as to the criteria of cardiac hypertrophy may be raised at this point. Most workers have been satisfied with generally accepted standards of cardiac weight and measurements, but some of those who have insisted on the necessity of relating heart weight to body weight, and of ascertaining the mass ratio of the two ventricles by weighing them separately; namely, Hirsch,[10] Wideröe,[11] Bert,[12] and Kirch,[13] have maintained that emphysema is invariably accompanied by right ventricular hypertrophy. However, the method of separating the ventricles used by these workers, that of Müller,[14] is now known to be inaccurate, so that their results cannot be accepted without question. A recent reinvestigation of the subject by Kountz, Alexander, and Prinzmetal[7] substantiated the original observation that emphysema may occur without right ventricular hypertrophy.

The most recent experimental data constitute evidence against the obstruction theory, at least insofar as all but the latest stages of emphysema are concerned. Kountz, Pearson, and Koenig[15] measured the pulmonary circulation time in dogs with experimental emphysema and found that it was normal; Blumgart and Weiss[16] found that only in far advanced cases of human emphysema was the arm-to-arm circulation time prolonged; Heinbecker's[17] perfusion experiments showed that moderate distention of the lungs increases pulmonary blood flow, and that the distention must be considerable before the flow diminishes, and Kountz, Alexander, and Prinzmetal[7] found that the heart was normal in eight of their nineteen dogs with experimental emphysema.

OBSTRUCTION THEORY

The present status of the obstruction theory may be summarized by saying that an entirely satisfactory solution of the problem which it presents must wait for an accurate quantitative method of estimating the number of capillaries which are destroyed.

In addition to the possibility of pulmonary hypertension, there are various dynamic factors which must be considered in connection with the problem of right ventricular hypertrophy in emphysema. First of all, it is necessary to ask what influence respiration has on blood flow into and within the thorax. Beginning with the ingenious experiments of James Carson,[18] in 1815, this question has been the subject of a great many investigations, not even the most fruitful of which can be reviewed here. As a result of these studies, it is now well established that the respiratory excursion of the diaphragm, respiratory changes in intrapleural pressure, and the elasticity of the lungs are important factors in promoting venous return to the right auricle and flow of blood from the right ventricle to the left. Furthermore, it has been shown that the efficiency of the heart is greatest at the normal subatmospheric intrathoracic pressure.

Although it is generally admitted that true emphysema is the result of some pathological process, usually bronchial asthma, which causes obstruction of the air passages, the question whether inspiratory or expiratory obstruction plays the more important pathogenetic rôle has long been hotly debated. The prevailing conception, which is probably erroneous, was originated in 1870 by Biermer.[19] He maintained that bronchial constriction calls forth an active expiratory effort which compresses the lung and raises intra-alveolar pressure, thus weakening the alveolar walls and producing emphysema; furthermore, he believed that compression of the lungs in active expiration initiates a vicious cycle of increasing resistance to expiration. In 1922, Hoover[20] completely disproved this idea of a vicious cycle, but he failed to throw new light on the pathogenesis of emphysema because when he produced bronchoconstriction in dogs by means of histamine, no pulmonary distention occurred. Hoover's experiments were repeated in 1934 by Prinzmetal,[21] who, when he found that histamine was unsuitable, employed other bronchoconstricting drugs, such as eserine and pilocarpine, and succeeded in producing distention of the lung.

HOOVER'S AND PRINZMETAL'S RESULTS

If we discard the Biermer theory and accept Hoover's and Prinzmetal's results, we may visualize the pathogenesis of pulmonary emphysema as follows: Bronchoconstriction; increased resistance to breathing; more negative intrapleural pressure; pulmonary distention; loss of pulmonary elasticity; and, finally, organic emphysema with a less negative intrapleural pressure. This means that in the earlier stages of its development, which may extend over many years, emphysema is more or less constantly accompanied by an excessively negative intrapleural pressure, and this, in turn, would mean excessive filling, dilatation, and ultimately hypertrophy of the right ventricle. Such an explanation is compatible with the not inconsiderable experimental evidence that inspiratory stenosis of the trachea, whether it causes emphysema or not, leads eventually to dilatation and hypertrophy of the right ventricle (cf. Sulger[22]). Furthermore, it would account for the fact that dilatation of the right ventricle is known to occur in the early stages of emphysema, long before the destruction of capillaries has become extensive enough to exert the slightest effect on pulmonary arterial pressure.[7] Attractive as this hypothesis may be, it still leaves us, as the obstruction theory does, without any explanation of the fact that the heart remains perfectly normal in numerous cases of severe emphysema, both human and experimental.

As many writers have observed, the clinical differentiation between advanced emphysema and incipient heart failure may be very difficult. Shortness of breath, cyanosis, reduction of the vital capacity, and elevation of the venous pressure occur in either condition, and even dependent edema may be due to emphysema. The problem is solved if it can be demonstrated that the heart is not enlarged, or if there are unequivocal indications of pulmonary or hepatic stasis. The patient whose symptoms are due entirely to emphysema is not so likely to have orthopnea of choice or necessity, and the history will usually bring out the fact that his cyanosis and air hunger have been slowly progressive for a much longer time than they are in heart failure.

THE LEFT VENTRICLE

Although Ludwig Traube[5] had some inklings of the fact that the left ventricle, as well as the right, may be involved in emphysema, C. F. Hoover[23] was the first to state it clearly. He observed that heart failure in advanced emphysema is due to something which affects both ventricles equally, and suggested that chronic anoxemia is probably the cause. In their reference to Hoover's discussion of this subject, Kountz, Alexander, and Prinzmetal,[7] who likewise observed left ventricular hypertrophy in cases of emphysema and found that it occurred in many of their dogs with experimental emphysema, pointed out that Vacek[24] produced generalized cardiac hypertrophy in mice by exposing them to low oxygen tensions, and that the work of the

heart can be increased by inducing partial asphyxia (Strughold[25]), but it is obvious that more experimental data must be accumulated before any conclusions can be drawn concerning the cause of the left ventricular hypertrophy.

CONCLUSION

In this brief review I have tried to present the more important experimental and clinical observations concerning the effect of pulmonary emphysema on the heart, and have mentioned some of the various factors which must be considered in the investigation of this elusive problem. Much progress has been made, especially in recent years, but it is obvious that there are still many distressing gaps in our knowledge. At present it seems fairly well established that selective or preponderant hypertrophy of the right ventricle may or may not occur, that if it does it may begin early, and that if it begins early it is probably due to the excessively negative intrapleural pressure which accompanies incipient emphysema; that pulmonary hypertension caused by destruction of capillaries is not an important factor in the right ventricular hypertrophy except in the late stages of emphysema, and that hypertrophy of the left ventricle may occur in conjunction with hypertrophy of the right.

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USE OF BUTYN

Persons on whom solutions and ointments containing the drug butyn are to be used, should be first tested for idiosyncrasy and hypersensitivity to it, Howard J. Parkhurst, M.D., and John A. Lukens, M.D., Toledo, Ohio, advise in *The Journal of the American Medical Association* for March 4.

The drug is a surface anesthetic, used as a substitute for cocaine, for the nose and throat. The authors base their advice on their experience with a woman patient who suffered a severe inflammation of the skin and eyes from the drug, as well as on a review of three other cases previously reported by other physicians.

MATERNAL AND CHILD HEALTH SERVICES UNDER THE SOCIAL SECURITY ACT

By CLARA E. HAYES, M. D.
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THE passage of the Social Security Act i August, 1935, made Federal grants-in-a available to the states for maternal and chil welfare. This act, intended primarily to im prove health conditions of mothers and ch dren in rural areas and areas of economic tress, is broader in its scope than the forme Maternity and Infancy Act. Grants are included for medical and surgical treatment of crippled children, and other children are included in its child health provisions. Only the maternal and child health services under the Social Security Act will be considered here.

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ADMINISTRATION OF SERVICE

Title V, part 1, of the Social Security Act provides Federal grants-in-aid administered by the Children's Bureau and in the states by the departments of health for the extension and improvement of maternal and child health services. Each state prepares its own plan for these services. After the plans have been approved by the Children's Bureau as complying with the requirements of the act, the programs are administered entirely by the state and local health departments.

The Social Security Act authorizes an annual appropriation of $3,800,000 of which $2,820,000 must be matched by state or state and local funds, and $980,000 is granted unmatched on the basis of the states' individual maternal and child health needs.

Between 1929, when Federal funds under the former Maternity and Infancy Act were discontinued, and 1935, when the Social Security Act was passed, there was a marked recession in both state and local appropriations for maternal and child health work in many states. In 1934, when the Committee on Economic Security began its work, only 31 state health departments had bureaus or divisions of maternal and child health in operation and only 22 of these were directed by full-time physicians.

Funds under the Social Security Act became available to the states in February, 1936, and by the end of that calendar year plans had been prepared by all of the 48 states, the District of Columbia, Alaska, and Hawaii and approved by the Children's Bureau. In certain respects, particularly with reference to matters of administration and types of basic services, the plans of the various states are much alike. Yet with each state responsible for the preparation of its own plan and with the needs of the states varying widely because of different geographic, racial, agricultural, and industrial conditions, the plans differ in many items.

All of the 48 states, and Alaska, Hawaii, and the District of Columbia, have established divisions or bureaus of maternal and child health in the state health agency under the direction of a physician. In the spring of 1936 the Conference of State and Territorial Health Officers recommended to the Children's Bureau that the director of a division of maternal and child health in a state department of health should be a physician trained in pediatrics or obstetrics or both and preferably in public health as well. Today, of the 51 directors in office, 30 have been trained in pediatrics and six in obstetrics, six have had previous experience in child health

administrative positions, and nine have had no specialized maternal or child health training or experience; all but two of these nine, however, have had general public health experience or training. Of the 51 directors, 22 have now had some training in a school of public health. Because of the many clinical features of a maternal or child health program, previous clinical training or experience has been considered by most state agencies to be a fundamental qualification for these positions. As the programs broaden and more and more local practicing physicians take part in rendering the services, this policy becomes increasingly important.

Additional physicians have been employed by 42 states, either as administrative assistants or as clinical consultants. The plans for 1939 show that there will be 28 pediatricians and 13 obstetricians thus employed full time during the year. Each year since the provisions of the Social Security Act have been in operation more local practicing physicians have assisted with the services in their communities. In many situations in rural areas obstetricians and pediatricians are not available for service in prenatal or child health clinics, and in such situations general practitioners have many times assisted. It has been the policy of many states that services thus rendered by local physicians should, as far as possible, be paid for, and supervised by pediatricians or obstetricians.

SCOPE AND CONTENT OF PROGRAM

The functions of the state divisions of maternal and child health as outlined in the plans include: (1) To seek the cooperation of the physicians of the state in extending statewide facilities for continuous health supervision throughout pregnancy and throughout infancy and childhood, and in providing care for sick children and for women at delivery; (2) to seek the cooperation of physicians and all other citizens of the state in informing the public what good maternity care, infant care, and care of children at different stages of growth and development are, and how facilities for such care may be made available in each locality of the state; (3) to develop maternity and child health services in all parts of the state through local health units; (4) to aid in the organization of local health units through the provision of child health or maternity services in areas not yet fully organized; (5) to be responsible for establishing high standards of service in the maternal and child health field; (6) to cooperate with all other bureaus of the state health agency in activities affecting the health and welfare of children and mothers, such as public health nursing, control of communicable diseases, including tuberculosis and syphilis, collection and study of vital statistics, and control of the milk and water supply; (7) to cooperate with other state agencies concerned with problems of child health or welfare, such as the bureaus of child welfare, departments of education, and the agriculture extension service of the departments of agriculture; (8) to cooperate with medical and other professional groups in providing facilities for postgraduate education in maternity care and care of children and the related fields of nutrition and dental care; and (9) to promote health education through the schools and the general public.

HEALTH SUPERVISION SERVICES

The maternal and child health services that are carried out under state plans are basically those commonly described as health supervision:

(1) Prenatal clinics and child health conferences conducted by physicians with the aid of public health nurses; (2) home visiting by public health nurses for teaching maternal, infant, and child hygiene, and for instruction in bedside nursing care, and (3) nurses' classes or conferences with mothers for educational or follow-up purposes.

In addition, planning for the care of the mother at delivery and of the infant in the neonatal period is becoming widely recognized as one of the important services to be rendered by the local staff. In an increasing number of local areas provision is being made for home nursing care at delivery of women

attended by physicians and of their newborn infants, as well as the more usual prenatal and postnatal nursing care. In a number of states the problems of the medical and nursing care of prematurely born infants are being given special attention.

CONSULTATION AVAILABLE

The services of consultant obstetricians and pediatricians are being made available to assist general practitioners with their individual cases in special regions or localities of certain states where such services are not available to women unable to procure them from their own resources. In at least one state such services are supplied on a state-wide basis. Though the number of such projects is still limited and the territory and population covered are relatively small, a variety of methods of meeting the need for case consultation service are being explored with a view to determining the most practical method for use under different conditions. In 18 states obstetricians or pediatricians are employed on a full-time salary basis for this purpose, usually to serve in a single district or county demonstration unit; in 22 states consultants are employed on a part-time salary or fee basis, and in four states specialists may be called for consultation from an approved list by general practitioners, payment being made on a case basis. Ultimately a study of the different methods in use should give information on which conditions of employment and reimbursement permit a case consultant's services to be most fully and widely accepted, which conditions safeguard most surely the quality of the special consultation service, which plan of procedure defines most clearly the function of the case consultant as contrasted with the administrative consultant responsible for organization of the program, and most important of all, which plan results in raising most satisfactorily the general level of care rendered in the community.

During the current fiscal year in 35 states, the District of Columbia, Hawaii, and Alaska, provisions are being made for payments to practicing physicians for conducting prenatal and child health conferences and for school medical examinations. There is an increasing tendency on the part of the state agencies to enlist the aid of specialists in obstetrics and pediatrics in the state in setting up standards for the conduct of these conferences. A few states are establishing conference training centers for the general practitioners who will later take over the conduct of conferences in rural areas. If those conferences are to fulfill the purposes for which they are being established with regard to the individual served and to their influence on the character of medical practice in the community, they must measure up to the best practice in the community.

Last year, under the provisions of the Social Security Act, prenatal clinics or conferences were conducted by physicians in 2,713 centers in 36 states. Child health conferences were conducted in 6,033 centers in 43 states.

POSTGRADUATE COURSES

Interest in programs of postgraduate education for practicing physicians is increasing. In 1936, 13 states conducted courses under the maternal and child health plan in cooperation with state medical societies; during the present fiscal year, 1939, 39 states plan such courses. There is increasing evidence that the rural practitioners who care for such great numbers of mothers and children appreciate and are profiting by the courses which bring them not only factual information in obstetrics and pediatrics but stimulation to include health supervision and preventive procedures in their practices. The courses for local practitioners are creating a demand for short courses in obstetrics and pediatrics at medical centers where clinical observation and actual experience can supplement lectures.

Practically all state divisions of maternal and child health have conducted studies or surveys to acquaint them better with the health problems of mothers and children that exist in their states. The majority of the studies have been concerned with infant and maternal mortality, a number of them in con-

junction with the state medical societies; others have been special studies of the incidence of prematurity and stillbirths. Nutrition, immunization, and dental surveys have been conducted. These studies are all adding greatly to our knowledge of health conditions that actually exist in different parts of the country.

NUTRITIONISTS ON STAFFS

A steadily increasing number of states have added the services of one or more nutritionists to the staffs of the state health departments, usually in the divisions of maternal and child health, to serve as advisers to the medical, dental, and public health nursing staffs in matters related to nutrition of the family. On June 30, 1936, nine states had full-time nutritionists on their staffs. Today, 24 states employ 43 full-time nutritionists, in most cases to serve in a state-wide advisory capacity, in some to assist district or local staff in organizing local service or in rendering local service. The tendency is for the nutritionist engaged by the state to act as adviser to state and local staff and as coordinator of services offered by different state or local agencies rather than to give individual case service. The value of a nutritionist in an urban health service has long since been proved, especially when there is coordination of service with the welfare agencies. In the rural areas the need is often greater than in the cities. Here the home economics specialist of the extension service may be working with many families, but her work may not be well coordinated with efforts of the health department staff. A nutritionist serving in a rural health unit can be of great assistance both in a general advisory and educational capacity and in giving case service when desirable. Service of this sort is being rendered in a few rural areas.

The number of public health nurses probably constitutes a better index of actual services being rendered than any other one figure. To a great extent the effectiveness of the medical program depends upon the quality and the number of the public health nurses whose function it is to carry it into the home in understandable terms and techniques to the individual mother and child. This requires many skills and an understanding of human relationships which come only with proper training and experience under supervision. Most of the states have shown gratifying response to the recommendations of the Conference of State and Territorial Health Authorities regarding the qualifications of the public health nurses employed by them. According to the 1939 maternal and child health budgets, the states have provided for the employment of 2,716 public health nurses, or two-fifths of the total number of public health nurses working in the rural areas. In rural areas there is one public health nurse for every 11,000 persons in the population; in cities there is one for every 5,000 persons. The problem of adequate supervision and leadership for these public health nurses has been given serious consideration because of the need for special guidance and assistance in maternity nursing and in many of the problems of infant care and care of young children. For the year ended June 30, 1938, specialized public health nursing consultants in maternal and child health have been appointed to the staffs of 21 state health agencies, and in 12 additional states the chief nurse or at least one of the generalized supervisors has had special work in maternity care or care of children.

COOPERATION WITH PROFESSIONAL AND LAY GROUPS

One of the conditions specified in the Social Security Act that must be met before approval can be given to the state plan by the Chief of the Children's Bureau is that the plan must provide for cooperation with medical, nursing, and welfare groups and organizations. Up to the present time this condition has been met largely by the formation of state maternal and child health advisory committees made up of representatives from state medical associations, other medical organizations, the state nurses' associations, the state welfare departments, special organizations for child welfare or public health, lay organiza-

tions such as parent-teacher associations, state federations of women's clubs, and organizations of farm women. In some states technical subcommittees have been appointed to work with the divisions of maternal and child health in developing the medical phases of the program. In 40 states members of the American Academy of Pediatrics are represented on advisory committees. In 33 states the state medical societies have appointed committees to act in an advisory capacity to the state boards of health in their maternal and child health programs. There is need for improvement in the functioning of the technical committees in order to make sure that the members of the profession in each state who have a real interest in the program and have much of value to contribute may do so.

In addition to giving technical advice through professional representation, the advisory committees in many states are proving invaluable in promoting the understanding of, and gaining the cooperation of large groups of citizens through representation of lay groups on the committees.

UNMET NEEDS

During the three years that Federal funds have been available to the states for maternal and child welfare, steady progress has been made by the states and local communities in making services available to mothers and children. Many rural areas previously without such service have been reached; many groups in special need have been served; the quality of work in most places has been improved; standards of care have been established and services extended into new fields; a basis for administrative procedure has been established on the Federal-state level and between the states and local communities; a basis for acquiring facts with regard to the need and the extent of service is being developed. However, as progress has been made in establishing services, recognition of the gaps in the total program and of specific needs has been inevitable. Facts regarding maternal mortality, mortality of infants on the first day and in the first month of life, and mortality and morbidity of older children are being widely studied. Ways to meet many of the needs are already well known, but resources are inadequate to provide the means to carry out the necessary steps in the program. That the amounts now available to the states are not adequate to fill their needs was made apparent by the state health agencies in submitting plans for maternal and child health services for the fiscal year 1939. In response to a question as to unfilled needs, 28 states made statements of specific needs that in the aggregate amounted to $22,000,000 annually. These needs included funds for payment of physicians' fees for delivery and other medical care, hospitalization for maternity cases, additional public health nurses, additional prenatal and child health conferences, additional service of nutritionists, and additional public health units. Many other states made additional statements of need without specifying necessary personnel or costs.

The utter futility of providing means of assessing the health and welfare of children and of mothers and of not providing the means to maintain them in health or restore them to health if sick, or, in the case of maternity, to make available complete medical and nursing care of mother and infant has forced itself upon health and welfare workers and upon the people. The experience of three years has made clear the great advances that could be made in maternity care, in the health supervision and medical care of children, and in the care of crippled children, if facilities and resources for such care were made available to those otherwise unable to obtain it.

NEW YORK SESSION

The week of June 10, 1940, has been selected by the Board of Trustees of the American Medical Association as the date for the Association's ninety-first annual session, *The Journal* of the Association for March 25 announces. The session will be held in New York. This year's session will be held in St. Louis May 15-19.

FOREGUT—TRIUMPHANT ENTRY TO CONFLICT*

By N. B. HENDRIX, Ph.D., M. D., F. A. C. S.
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IT IS a miraculous excursion of nature, comparable only to the eloquence and sanctity of life itself, that permits us to contemplate and reckon with the living realities of a vast world of entoderm. To be able to grasp this thought in the living as well as the unborn, is the problem of absolute biologic science. To be able to expand, dissect, analyze, take from, add to, understand and properly interpret this entoderm, in the light of super conditions imposed, as special surgical pathologic entities is the supreme purpose of this effort. For, it is a further fact, that most frequently when we feel most secure in our knowledge of a given condition, we are least intellectual in our disposition of it.

Let us recall briefly the embryologic milling processes from which this entoderm had its beginning, and point the direction into which it leads. This inquiry will introduce many acquired contributions from which eternal conflicts arise. It is these conflicts that test our knowledge and try our several abilities. It is these conflicts that stir up our academic interests in our cell beginning and teach us forever to know that our problem becomes more complicated each day we grow older. It is these conflicts, properly interpreted, that teach us not to expect too much of an altered organism. It is these conflicts that keep burning a scientific interest in the development of the organism and the altered conditions we may presume time to have imposed.

From the moment fertilization of the ovum has occurred, great developmental processes rapidly occur in successive steps. Through lines of cleavage, in conjunction with unchanging isolecithal principles, the movement is morula to completed blastodermic vesicle. Within the center of the blastodermic vesicle is a mass of cells called the germinal disc covered with fluid, which in turn is covered with ectoderm. Studied grossly or microscopically, the cell mass at this point in its journey is one vast world of likeness. Everything looks the same. No single part differs from the rest. It is this sameness of substance, its physical and microscopical characteristics, disuniformity in size, shape, position, and relationships, that stamp the body organism with those attributes that may later be precursors of potential and actual pathology. Because this is a scientific truth does not permit me to rail at the gods, decry existence, or say it is evil. On the other hand, I am perfectly willing to say it is good, and live in the eternal hope that scientific research will continue to labor and completely master and understand why our bodies are sometimes so disjointed in time in which we find ourselves. "The time is out of joint, oh cursed spite that ever I was born to set it right" is the cry of the disciple of despair. Our scientific philosophy teaches us to keep an open mind and a searching inquisitive heart into the darkest depths in quest of further scientific truth. Our plan is never at rest. Its quest and work are eternal. Its reward is a mental universe graced by the dignity of demonstrable truth and a keen understanding of a workable animal organism. Its superiority over other worlds of thought is its intellectual mastery

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of the flexible embryologic animal organism as its basis for succeeding truths.

The biologic law of amphioxus, and of primates, and of ungulates, and of unguiculates show some dissimilar developmental reactions. The allantois, for example, of the ungulate is most representative of these embryologic variations. For practical purposes, in other respects, the lines of development are similar.

BLASTULA STAGE

The blastula stage of development having been completed, it becomes imminently imperative at once that eight biophysic biomechanic principles be in command as required. These fixed biologic principles are: (1) cell multiplication, (2) cell migration, (3) localized growth, (4) cell arrangement, (5) cell constriction, (6) cell aggregation into cords, sheets and masses, (7) delamination by splitting tangentially or obliquely or otherwise, and (8) the production of folds such as are seen in evaginations of invaginations. For either of these agencies to be absent or only partly functioning when called upon to do work is nothing short of yielding a body part not equal to biologic demands. And thus it is not presumption to indict ourselves of reasoning pathologic entities as real as when in reality they are apparent. Who among us can supplant or make over that which nature hath wrought?

It is a brilliant architectural design and overture when biophysics puts into action the invagination of the vegetal pole cells towards the animal pole cells. In a short time the old cleavage cavity that we had in blastula, is obliterated and now vegetal pole cells have invaginated up to animal pole cells, forming two layers, the entoderm within and the ectoderm without. The new cavity is the archenteron or primitive gut and its opening, the blastopore, each of which has a perpetuated significance. Since these entodermal cells shall thereafter be concerned in the nutrition and metabolism of the body, we might well ask the question, why did not the entoderm arise from the animal pole and not the vegetal pole? For it is a fact that all animal pole cells are more completely made, more uniform in size, and thus more able to transmit biologic tendencies. Yet it would seem the nervous system usurped the biologic prerogative and left the necessary entoderm to have origin in the vegetal pole whose cells are farthest removed from biologic excellency. Does not this one simple fact give us tremendous insight into the many possible deviations sometime later recognized as congenital deficiencies of whatever name in the whole gut developed tract. Do we invoke such reasoning sufficiently often in our surgical diagnosis and treatment? How many explorations of abdomens have we all made only to find later that our patients are not improved by the surgery imposed? The furtherance of all surgical scientific thought, even in our present day, yet calls for the ingenuity, the intellect, the courage and the determinations of a Vesalius, a Paré and a Hunter. When we have ascended to the heighth of our pinnacle, lest we fall, let us not forget our ancient brethren. They are still great living teachers.

DEVELOPMENT

The developmental heighth of our entoderm is now destined to positive states of action. The manner of its work accomplished is majestic in form. Every detail in its course is an outspoken living testimonial to the exacting nicety of the plan and the finished fixity of its purpose. It creates at once fullness of thought and purpose, wonder, admirations and ecstasy of mind. The head and tail folds of our fetus are fully developed at 2.5 mm. At the same moment, cephalad and caudad to the spherical vitelline sac, there are formed blind entodermal tubes, the foregut and the hindgut respectively. The region between this blind tube above and the blind tube below, opens ventrally into the yolk sac and is called the midgut. Nature has it so fixed in purpose by arrangement that the embryo and the yolk sac grow more rapidly than the connecting link between them, namely, the midgut, and, as a result, the midgut becomes

vastly constricted and we know it from then on as the yolk stalk or vitelline duct. This embryologic fact has vast future bearing upon our discourse, as we shall see, for we shall have to reckon further into the final features of a permanent circulation and possible intervening deformities. At either end the entoderm comes into contact ventrally with the ectoderm. Thus there are formed the pharyngeal membrane of the foregut and the cloacal membrane of the hindgut. In the two mm. embryos, the pharyngeal membrane separates the ventral ectodermal cavity or stomadæum from the pharyngeal cavity of the foregut. Cephalad to the pharyngeal membrane is the ectodermal diverticulation called Rathke's pocket or pouch. This ectodermal feature brings the developing base of the brain into definite relationship with the future intestinal tract and gives us an immediate insight into retropharyngeal tumors and other allied pathologies. In the three mm. embryo the pharyngeal membrane ruptures spontaneously and the stomadæum and the pharyngeal tube become continuous. Sessel's pocket is that part of the diverticulation remaining at the point of the original pharyngeal membrane after dissolution. This pocket gradually decreases in size and contributes nothing of importance to the future alimentary parenchyma. With such a majestic plan of work the foregut later forms a part of the oral cavity and becomes further differentiated in progressive rapid order into the pharynx and its derivatives, the esophagus, respiratory organs, stomach, duodenum, jejunum, and part of the ilium.

FORMATION OF LIVER AND PANCREAS

From the duodenum we get the liver and pancreas, the two colossal empires of conflict. The hindgut beginning at the attachment of the yolk stalk extends caudad to the cloaca into which the allantois, even though rudimentary in the human, empties in two mm. embryos. From the hindgut entodermal tube we get the rest of the ilium, cecum, colon, and rectum. All these are of direct entodermal origin coming from the same entodermal cells originally described and from the same entodermal tube, the difference lying in the fact that the midgut is constricted and obliterated by rapidity of growth. The cloaca, representing the lower end of the dilated hindgut, is partitioned by the cloacal membrane, further dividing the lower hindgut into rectum dorsally and the complicated urogenital sinus ventrally. By delamination, the cloacal membrane further splits into urogenital membrane front and anal membrane dorsally. Inequality in this division may end in imperforate anus or genital tracts, sometimes easily overlooked and often associated with other obscure inequalities of development. Next in order at seven mm. the yolk stalk separates from the entodermal tube where the midgut used to be and this separation often is incomplete. This is the embryologic point and basis for Meckel's diverticulum which causes acute pathology in the infant in the first few days of extrauterine life or may go for years and cause a dramatic end. This varying diverticulation may be found anywhere from 60 to 80 cm. above the cecal pouch in the hindgut.

PHARYNGEAL POUCHES

That we may see this entodermal tube more thoroughly in its entirety, the structures and functions they will develop, it is well to regard it craniocaudally in succession. There are developed from the lateral wall of the pharynx five pairs of outgrowths or pouches, called the pharyngeal pouches. From each of these pouches dorsal diverticulations grow out which meet the ectoderm of the branchial clefts, fuse with it and form the closing plates of the neck. These closures having been effected, the first pouch forms the tympanic cavity of the middle ear and Eustachian tube. The second forms the tonsillar fossa. The second, third and fourth branchial clefts fuse with the second, third and fourth pharyngeal pouches and thus completely close the neck. Errors here end in fistulous openings, tortuosities and other congenital deviations not in keeping with natural lines. It is of interest that at 10 mm. ventral medial diverticulations in the third pharyngeal pouch furnish the

anlage of the thymus gland. In a short time dorsal diverticulæ appear upon the third and fourth pharyngeal pouches furnishing the anlage for the parathyroid bodies. Lack of development here causes imbalance from the start of life. Aberrant placement in the making furnishes the basis for further surgical complications of the thyroid. Of the foregut proper each succeeding developmental step through to the duodenum is a separate complicating chapter of embryologic, anatomic, pathologic, surgical interest. They all belong to this common entodermal tube for basic growth which had origin in that part of the blastula most poorly endowed, namely, vegetal cells.

MASTER ENTODERM

The master entoderm is that from which comes the duodenum. The duodenum and its associates constitute the substance of this matter. The liver anlage appears at 2.5 mm. as a median ventral outgrowth from the entoderm of the foregut just cephalad to the yolk stalk. Its walls are thick and within it is a cavity continuous with the cavity of the foregut. This hepatic diverticulation is the true anlage of the future liver. As it grows out in all directions its walls become imbedded in splanchnic mesoderm, the septum transversum which goes to form a part of the future diaphragm. The septum transversum, therefore, after entering into the diaphragm acts as a ligament of suspension to the liver above and forms the ventral mesentery below. At five mm. solid cords of cells proliferate from the ventral and cranial portion of the hepatic diverticulum. These solid cords of entodermal cells anastomose and form a crescentic mass with wings extending dorsal and lateral to the gut. This mass becomes a solid trabecular network and is the glandular portion of the liver. The primitive hollow hepatic diverticulum with which we started is still present and eventually differentiates into the gall-bladder and biliary ducts. We are still in fetal life and when we found our early liver anlage it lay between the vitelline veins and laterally was in close association with them. Branches from the vitelline veins enter the ventral mesentery. The trabeculæ of the expanding liver grow between and about these venus plexuses and these plexuses in turn make their way between and around the liver solid cords as described. Thus it is a fact in fetal life that the vitelline veins, on their way to the heart, are surrounded by the liver, and in that developing substance are largely divided into sinusoid vessels. The endothelium lining these sinusoids is closely applied to the cords of liver cells which in early stages contain no bile capillaries.

HEPATIC DUCT

The glandular portion of the liver grows rapidly and at eight mm. it is connected with the original hepatic diverticulum only by a single cord of cells, the hepatic duct, constriction and hollowing out having done a large work. Thus, that part of the original hepatic diverticulum distal to the hepatic duct is differentiated into solid gall-bladder and cystic duct. The proximal portion at the same time becomes ductus choledochus. The hepatic duct receives a right and left branch from the corresponding lobes of the liver. The gall-bladder is solid to the 15 mm. stage. After that time it rapidly hollows out and high columnar epithelium surrounds the inner walls. The liver as a viscus develops rapidly and at the end of two months it is the largest organ in the body. The moulding of the liver lobes is under the direct influence of the fetal vitelline and umbilical trunks. We note here that the endothelial cells lining the sinusoids become stellate and form an incomplete layer. From the second month to sometime after birth blood cells are developed between the hepatic cells and the endothelium of the sinusoids. At 22 mm. hollow periportal ducts develop spreading inward from the hepatic duct along the branches of the portal vein. At 40 mm. bile capillaries are formed and these are numerous near the periportal ducts with which some contact. At birth the number of liver cells surrounding a bile capillary is reduced to two or three. The secretion of bile starts at the end of the third fetal month.

This is not all. The lobules which are the vascular units of the liver, are formed exactly in the manner in which the veins of the liver branch. The primary branches of the portal vein extend along the periphery of the primitive lobules parallel to similar branches of the hepatic veins which drain the blood from the center of each lobule. As development proceeds, each primary branch becomes a stem, giving off on either side secondary branches which bear the same relation to each other and to new lobules as did the primary branches to the first lobule. This embryologic milling goes on until thousands of liver lobules are formed. Up to eight weeks only the portal vein supplies the liver with blood. Shortly, the hepatic artery from the celiac axis comes into relation with the hepatic duct and gall-bladder. Later, it grows into the connective tissue about the large bile ducts and branches of the portal vein and it supplies the capsule of the liver. Multiple lobes of the liver, absence of the gall-bladder, double gall-bladder, and duplication ducts are common anomalies. What a masterful anatomy and physiology are all imposed at the same stroke.

DORSAL AND VENTRAL PANCREAS

Such an elaboration of developmental grandeur was not enough as finished organic endowment. At four mm. when the liver was being well advanced in its formative process, two pancreatic anlages appeared upon the same entodermal tube. The dorsal pancreas arises as a hollow outpocketing of the dorsal duodenal wall just cranial to the hepatic diverticulum. At 7.5 mm. the outpocketing is separated from the duodenal origin by a constriction and extends into the dorsal mesentery. The ventral pancreas develops in the inferior angle between the hepatic divertic ulum and the duodenum as entodermal gut tube and its wall is at first continuous with the hepatic diverticulum. As the ductus choledochus elongates with the growth of the liver, ventral pancreas origin is transferred to choledochus part of hepatic diverticulum. Of these two pancreatic anlages, the dorsal appears first, is the larger of the two, grows more rapidly, and at 10 mm., is an elongated outgrowing structure extending toward the left of the body, having a central duct and irregular nodules upon its surface. The ventral pancreas is smaller, develops a short slender duct from the choledochus by constriction, and opens directly into the ductus choledochus. When the stomach and duodenum rotate, the pancreatic ducts shift their positions as well. As the choledochus grows and bends to the right, the ventral pancreas approaches the dorsal pancreas. At 20 mm. ventral and dorsal pancreas interlock, eventually an anastomosis occurs between the two pancreatic ducts, and finally the duct of the ventral pancreas plus the distal segment of the dorsal duct persist as the functional pancreatic duct of the adult. Proximal dorsal duct remains open but acts as an accessory to the ventral duct. The ventral pancreas forms part of the head and uncinate process of the gland. Dorsal pancreas contributes further to the head and forms the body and the tail. Variations of origin in pancreatic anlages are common. Aberrant and accessory pancreatic glands are frequently found. At 10 mm. the portal vein separates the two anlages but later they partly surround the portal vein. The alveoli of the gland are developed from the ducts which were originally cords as darkly staining cellular buds at 40 mm. stage. The Islands of Langerhans appear as buds in the tail first at 55 mm. stage. Thus completed, we have a permanent entodermal tube now known as the gut proper, surrounded at a central point on either side with the liver on the one hand and the pancreas on the other, both of which are in constant communication with that gut tube all the time. This combination of ductus choledochus, ductus Wirsung, ampulla Vater and gut is a dangerous arsenal. This statement is literally true in terms of whatever thought applied. In the pancreas, evaginations and invaginations not properly carried out or not carried out at all, yield an infant at birth with no insulin or insufficient insulin. The final cell

arrangement is so deficient that these few Islands of Langerhans developed soon degenerate because the burden of physiology is too great for the too few in number. This biologic principle in graduated degree has some influence upon true adult diabetes with infection as the added factor. Of course the opposite picture may prevail assuming that cords of cells may suddenly grow rapidly into a tumor world. Congenital bands inside and outside the upper and lower duodenum and in other parts of the rest of the entodermal tube have simulated specific lesions before surgery and not found at operation. Of these, annular rings, crescentic bands, partially occluding membranes in the upper duodenum are common in occurrence. For these congenital deficiencies, many stomachs have been opened, many gastroenterostomies performed, and many gall-bladders removed but these patients did not get well. We, not infrequently, encounter the asthentic type of patient complaining of gaseous distention, pain in the upper abdomen, especially referable to gall-bladder and epigastrium, dysphagia and a sense of uneasiness. We forget that a constricting band may be in the lower esophagus which, aided by an unstable nervous system, makes possible all types of symptoms to be described.

ENTODERMAL DEFICIENCIES

Throughout the length of this gut as a tube, and its entodermal derivatives as organs, any allied deficiency may occur, and as they occur they make a pronounced impression upon the living physiology which tests our knowledge of pathology and our ability to cope with real facts. This story of entodermal deficiency will always lead back to the questions—did primitive archenteron close properly? Were the vegetal cells increased in number and rapidity sufficient to biologic demands? Did certain cells migrate to other points when needed? Has the localized growth of cells been equal to biologic necessity? Were these cells arranged properly or did they just come to exist without purpose?

The liver and the pancreas are the two great indispensable storehouses for the proper functioning of the finished gut tube. They are its direct parts. They play an important rôle in all our surgical end results. The liver is the great storehouse for glycogen. The muscles store some glycogen in the form of lactic acid. Of the two, the liver is the important storehouse in surgery. Liver glycogen varies, and is dependent upon amount of carbohydrates ingested, the condition of the liver cells, and the conditions imposed upon the liver which cause glycogenolysis. The normal human liver is about six per cent glycogen. This can be raised at once by increased carbohydrate diet or intravenous glucose. When carbohydrates are increased there is a rise in the blood sugar. If the liver and muscle were able rapidly to transform glucose into glycogen and rapidly store the glycogen, there would be no increase in the blood sugar. This condition may be more pointedly true when glucose is given intravenously. The rate at which the liver cells can transform glucose to glycogen and the amount of glycogen which the liver cells can store as such will determine this biochemic necessity fact. If too large an amount of glucose be ingested or injected rapidly, the rise in the blood sugar may exceed the renal threshold value and glycosuria ensue. In average normal individuals this spilling of sugar does not occur until the blood sugar has reached 170 mg. per 100 cc. blood. While the average patient will tolerate one gram of glucose per hour per kilo, in certain pathologic conditions affecting the liver, the glucose tolerance is markedly lowered and ingested or injected glucose will rapidly pass into the urine. By experimental research and clinical experience, we know that in obstructive jaundice it is difficult for the average patient to tolerate more than .3 grams of glucose per kilo per hour intravenously. In this same type of patient, the plasma proteins may be depleted. We should never forget that when we force protein ingestion here in whatever form, that the amino acids which are formed by hydrolytic

splitting may be transformed into glucose. If this conversion takes place to the greatest possible extent, we know that 58 per cent of the ingested protein may become glucose.

LIVER GLYCOGEN

In surgical practice, many of the conditions we meet tend to deplete the liver glycogen which may already be markedly decreased by the condition of the liver cells. Thus, starvation, conditions causing adrenal stimulation, anesthesia, shock, surgical handling, anoxemia, anorexia, hyperthyroidism, and hepatico-biliary duct disease, all may reduce the liver glycogen. Under such circumstances hepatic insufficiency or liver failure may assert itself in dramatic form when we least suspect it, and in spite of heroic preoperative preparation that may have been carried out.

The mistake of attempting to estimate liver glycogen from the status of blood sugar reading should never be made. Only under the most adverse conditions will hyperglycemia fail to appear under adequate stimulation to glycogenolysis. Even when the glycogen stored in the liver is markedly depleted real hypoglycemia is rarely observed. Exceptions to this status are found in those tumors of the pancreas which produce hyperinsulinism. Recent researches by Mann on the fate of the blood sugar after hepatectomy have a practical application in certain conditions in surgical practice. Gall-bladder disease is frequently associated coincidentally with diabetes mellitus. If considerable hepatitis or common duct obstruction with marked secondary liver damage be present, it is exceedingly difficult to standardize the patient from the diabetic standpoint. A dose of insulin, which under other conditions, may not seriously reduce the blood sugar, may, in the presence of a depleted glycogen store, result in a severe hypoglycemia with all the phenomena of insulin shock and cardiac failure. As the insulin acts to reduce the blood sugar, the liver cells immediately act to mobilize glycogen and release it as free glucose back into the blood stream. Badly damaged liver cells not only have a deficient storage of glycogen but that glycogen which is stored is mobilized on demand too slowly and blood sugar drops precipitously. Such a phenomenon is a common occurrence in cancer of the liver. Marked states of hypoglycemia difficult to control are seen in certain adenomatous tumors of the pancreas not associated with liver damage. Hypoglycemia should not be regarded as of liver origin unless other conditions are ruled out. Thus we live constantly in and about an entodermal gut tube with the liver on the right and the pancreas on the left, both of which communicate continuously with the tube and both always open to invasion and damage.

IMPORTANCE OF WATER BALANCE

Water balance must be maintained to further the work of metabolism in relationship to this tube and its parenchymatous appendage derivatives. By such procedure only do we control ketosis, maintain acid base equilibrium and prevent edema. In the average person the whole fluid intake is by mouth. Certain quantities of fluid are added to the body economy upon the oxidation of solids. Fluid output is by several routes. The kidneys usually excrete half of the fluid intake. By exportation, lachrymation and defecation, certain parts are lost. The skin and the respiratory tract are the great auxiliaries to the kidney. Draining sinuses, large areas of denuded weeping skin, small bowel and biliary fistula, long suppurative pulmonary lesions, all of these may throw the organic body into water imbalance. Any surgical patient is exposed to many factors that may cause water imbalance. Anorexia and vomiting are frequent attendants in abdominal cases before surgery is imposed. Postoperative water deficit in all types of cases occur daily. The fact that fluid by mouth has to be withheld before and after operation is a positive reason why fluid should be given by rectum, subcutaneously or intravenously at the earliest possible moment. An added factor here is the surgical patient who after operation, develops persistent vomiting and maybe diarrhea. The loss of fluids in this patient is enormous and

unless the condition be met with fluid intake and retention we soon have a very toxic patient. By observation and repeated experiment, it has been estimated that the salivary glands, the liver, the pancreas and the glands of the gut wall, pour out into the intestinal tract 8,000 to 10,000 cc. fluid daily. In severe vomiting and diarrhea that persist not only is this fluid lost, but the enzymal salt characters so essential to digestion and metabolism are also lost. During any operation that lasts for one hour or more, especially during traction and manipulation within the abdomen, the insensible loss of body fluids is relatively high. We keep the patient in a warm room to prevent exposure. Excitement, struggling, and even fever markedly accelerate the general body metabolism. The added heat is a stimulus to perspiration and we have reason to believe that the average patient under these circumstances who remains upon the board under any type of anesthesia loses 1,000 cc. fluid within four hours and about 2,000 cc. fluid is lost insensibly per day for the next day. Aggravating factors that may be added are hemorrhage and edema at the site of the operation which remove fluid rapidly from the circulation. Therefore, it is obvious that the average patient, while he may maintain normal fluid and tolerate it well, under surgical conditions, it is not enough and a marked fluid deficit easily develops. The more serious the surgical illness may be, the more imminently important is this biochemic fact.

FLUID DEFICIT

All that may happen following fluid deficit we do not know. Those factors with which we are familiar may cause dramatic situations at moments most inopportune. Fluid deficit, when not due to a massive hemorrhage, is followed rapidly by increased blood viscosity, which slows the circulation and puts added burden upon the heart. At the same moment, the urinary output is decreased at the very moment protein breakdown is going on due to tissue injury at the operative site and the substitution of protein for fat and carbohydrate as food. The excretion of the toxic products of infection or disintegrating tissue which occurs mostly through the kidneys is lessened by low urinary output. In all we are dealing with a very sick patient. If urinary output further decreases, uremia will develop. The kidneys are no longer equal to acid base equilibrium control when starvation ketosis is present. As acidosis or alkalosis ensues, whichever it be, vomiting follows, further dehydration ensues and a vicious circle is formed. When a patient vomits it can never be exactly replaced. Lessened salivation occurs, the patient is restless and uncomfortable and hyperpyrexia follows dehydration because the sweat glands can not excrete enough perspiration to control the body temperature. For these reasons, however clean the case may be, more fluids should be given for the first few days following any operation than we have been accustomed to use.

SODIUM CHLORIDE

The maintenance of fluid balance is not alone the function of fluid intake. It is always predicated upon the efficiency of the circulatory system, the state of the kidneys, the patency of the ureters, bladder and urethra, the concentration of serum proteins and serum electrolytes. Sodium chloride is the most important electrolyte and its presence in sufficient quantity is imperative to the maintenance of osmotic pressure throughout the body as well as the gastrointestinal tract. All fluid lost from the gastrointestinal tract or other parts of the body in the presence of pathology contains sodium chloride and other electrolytes. Blood chlorides always go down in prolonged vomiting and diarrhea, fecal-like vomiting, and draining fecal fistula. When this has occurred through dehydration, plain water alone will not correct the situation even though no protein be lost. Plain water alone may adjust the hemoglobin concentration of the blood and the serum protein concentrations, but it will decrease the concentrations of the lost electrolytes to a subnormal level. This leads to diuresis which is an attempt to restore osmotic pressure to normal. If we

substitute normal salt or Ringer's solution, the electrolytes can be retained in the body because they are isotonic and do not lower the total osmotic pressure of body fluids below normal and are absolutely essential to the full maintenance of normal acid base equilibrium. In most of our surgical cases so treated we do not have to fear overdosage of physiologic saline solution because it can usually be excreted by the kidneys. In certain cases complicated by nephrosis and pneumonia, the kidneys seem to have lost most of their power to excrete sodium chloride, at least temporarily, and it is in these cases we should use it with caution, lest excess sodium chloride cause retention of water followed by general edema. On the whole, the average surgical patient can handle excess sodium chloride and so under treatment is more to be feared than over treatment. A satisfactory urinary output means a good water balance. In some of our patients the circulatory and excretory systems are inefficient as specialized organs. In these too much fluid of whatever nature may be deleterious and frequent laboratory determinations may have to be invoked to steer us between dehydration on one hand and circulatory failure or edema on the other.

ENTODERMAL TUBE—COMPLICATING FACTOR

Our entodermal tube with which we began and from which was developed that great metabolic city of liver and pancreas, thus becomes a varied complicating factor for the duration of life. Understood in its most tangible and simple forms, it gives origin to every oxidation which is followed by reduction and this by acting spontaneously through synthesis and degradation of other metabolic end or near end products. Only in this way is the spontaneity, the nicety and the fixity of the biochemic plan carried out. When this mechanism is out of order our bodies are at once complicating surgical problems.

We cannot escape the significance of infection and repeated infection within and upon this gut tube and its derivatives. From the moment the individual leaves uterine life it wages a constant direct battle against infection. Within the uterus, it wages a constant indirect battle against infection. We must remember, therefore, that infection is the successful invasion of the tissues by bacterial forms or their toxins, the full complications, implications and consequences of which we never fully know. Consequent in order must follow inflammatory reactions and these are always associated with parenchymatous degenerations. Under reasonable virulence and not repeated too often, the cells of the liver and the pancreas and the whole gastrointestinal tube will completely restore the damage done, but repeated too often, we find permanent tissue changes not compatible with good biophysics and biochemistry so essential to a balanced organism. So we find scattered throughout the liver and the pancreas and the gut tube various stages of degeneration, pyknosis, karyorhexis and karyolysis often further accentuated by amyloid infiltration, hyaline degeneration and connective tissue hyperplasia, all of which kill the specialization of highly developed cells. With the gut tube always open to receive these bacterial forms from above and below, is it any wonder that the liver and the pancreas are constantly in the presence of bacterial invasion to say nothing of infection that reaches both organs by the direct circulation and the lymphatics? These repeated infections from whatever portal or avenue of entry, through various degrees of degeneration, disrupt the whole cell architecture and consistency. Osmosis, dialysis and diffusion no longer bear a reciprocal relationship and finally we are dealing with a liver and pancreas and gut tube in all three of which the cells are in imbalance with respect to surface tension and cohesive pressure. An outstanding example of this factual pathology is best illustrated by resection of the colon for autointoxication as was practiced by Sir Arbuthnot Lane some twenty-five years ago. Because in many of his patients, demonstrable lesions of the gut tract or the liver or the pancreas could not be found, Lane conceived the idea that the colon

furnished the resting place for various bacteria, which gradually lessened body resistance and acted as an autointoxication and autoinfection. He further conceived the idea that the way to cure the condition was to resect the colon. Mechanically, Lane's resections were masterpieces of surgical endeavor, but pathologically his patients all became worse instead of better. It required the brilliant intellect of a Moynihan to teach Lane no surgical effort was worthwhile that disregarded physiologic lines and purposes. Lane forgot that the colon was the great water absorbing station of the gut tube, that it was the great hematopoietic preparation room and that it was the natural home of the colon bacillus, so necessary to our well being under proper conditions. In all his patients, however, permanent cellular damage was found in the liver, the pancreas and the whole intestinal tube.

PORTAL SYSTEM

One further conflict of this system remains to be discussed. The portal system is the constant bugbear to all life and to all surgery. Its possibilities of real destruction are always imminent and not dormantly potential. When we glance at its arrangement and ramifications, we almost feel that nature has been unkind in its imposition. This system drains all the used blood from the abdominal part of the alimentary canal except the lower rectum, the spleen, the pancreas and the gall-bladder. The portal vein proper is only three inches long. The superior mesenteric vein ascends between the folds of the mesentery in the right abdomen to meet the splenic vein between the head of the pancreas above and the inferior vena cava below to form the portal vein. Into the splenic vein in its course before juncture with the superior mesenteric vein, branches of the gastric and pancreatic veins empty. The superior mesenteric vein drains the ileum, cecum, appendix, ascending and transverse colon. In the lower left abdomen the inferior mesenteric vein starts from the superior hemmorrhoidal vein, ascends behind the peritoneum and in front of the psoas muscle, ascends, passes behind the pancreas and enters the splenic vein. The significant thing here is the fact that used blood from this whole alimentary system, always possibly contaminated, leaves the gut tract by capillaries and is carried to the liver as a storage cesspool where the portal vein again breaks up into capillaries before it leaves the liver by the hepatic vein. Obstruction to the portal vein such as pressure from tumors may cause ascites, cancer of the liver or cirrhosis of the liver from connective tissue contraction, and injured liver cells may do the same thing. The spectacular thing in this whole phenomenon is the fact here is a gut tube system associated with offspring derivatives constantly being bombarded by infection from direct circulation and lymphatics and yet that same system empties its whole used blood directly back into that liver to further damage it. These facts make possible any describable possible complication. A virulent organism reaching the splenic vein under the proper auspices may precipitate with dramatic suddenness the most destructive acute pancreatitis with rapid dissolution and the gall-bladder and common bile duct still be perfectly normal.

When we meet our patients upon the board for surgical disposition, it is well that we shall have reflected the developmental aspects of the gut tube, pondered the congenital deficiencies possible, evaluated with due consideration liver and pancreatic physiologic efficiency, and fully recognized the subtlety of the portal system. Thus, we become true masters of our art.

SULFANILAMIDE IN PNEUMONIA

The future specific treatment of pneumonia probably will be with a combination of sulfanilamide and pneumococcus serum, especially in those cases caused by types II and III pneumococci, Alvin E. Price, M.D., and Gordon B. Myers, M.D., Detroit, state in *The Journal of the American Medical Association* for March 18. Although the results obtained from using the drug in the treatment of pneumonia are encouraging, the place of sulfanilamide in the treatment of the disease is not definitely established.

REFLECTIONS ON THE DIAGNOSIS AND TREATMENT OF CORONARY OCCLUSION

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THE writing of this paper is prompted by the recent observation of numerous cases of coronary thrombosis, characterized by an atypical syndrome, so that most of them had been diagnosed and treated as gastric or gall-bladder disturbances. It has been stressed again and again by writers on the subject that closure of the coronary arteries typically produces a vise-like pain over the sternum and precordium, with radiation up into the neck, the left shoulder, and down the left arm, together with a picture of shock and a sense of impending death. This syndrome has been emphasized and taught to students and practitioners of medicine, and has been well learned. Very few cases presenting the above symptoms, together with the typical signs, are overlooked today. On the other hand, the inevitable result of a too clear-cut, standardized clinical syndrome is that those cases which vary in their symptomatology are the more likely to be overlooked. Just as surely as lobar pneumonia may be present without rusty sputum, so may coronary thrombosis be present without precordial pain.

We shall never forget Case 1, a tailor who came to see a doctor because he wanted a tonic. He had been feeling too tired for the past forty-eight hours and could not do his work well. His heart sounds were inaudible. An electrocardiogram revealed the presence of a typical coronary thrombosis and during the ensuing weeks continued to show changes from day to day, including all degrees of heart block. At no time did he have any pain in his chest.

Case 2 will be described in detail. He was a white male, sixty-one years old, with a past history of thromboangiitis obliterans of both legs two years before. When first seen, he complained of a sense of heaviness and indigestion one hour after meals for over two years, getting progressively worse. He also complained of pains over the upper precordium and along his neck and down the left arm for one week. He had gained forty-five pounds in two years. On physical examination the outstanding points were his obesity, his large abdomen, a very large bilateral scrotal hernia, a blood pressure of 172/96, and normal heart and lung signs. A gastro-intestinal series was taken to rule out gastric pathology in what we felt was a case of coronary sclerosis. It revealed a diaphragmatic hernia, the hernial sac filling with barium only when the patient was in the recumbent position. He was placed on a low caloric diet, fluids were limited and rest and sedatives were prescribed. One week later, one of us was called to his house and found him complaining of severe pain over the upper portion of his precordium, radiating up to the jaw and down the left arm to the finger tips. He had had several such attacks the day before, but this was the most severe. Unlike the others, it persisted. He felt better when he was up and about. Upon examination, his heart sounds were of good quality, his blood pressure was 170/90, and his temperature was normal. It required three injections of a half a grain of morphine sulphate within an hour to put him to sleep. The following day he was coughing and vomiting, his temper-

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ature by mouth was 100.6 degrees, and his blood pressure was 110/85. His pain was persistent, there were râles present at the bases, and, worthy of note, his heart sounds were still of good quality. An electrocardiogram revealed a high take-off of the S-T intervals, with inversion of the T waves in leads one and two. The patient was kept in bed under sedation for six weeks. At that time, inasmuch as his sedimentation rate was normal and he felt well, he was allowed up out of bed, with a graduated schedule of increasing activity. Today, three years after his attack, he is active in business and has had neither pain nor gastric symptoms since. An electrocardiogram taken a year ago was normal in all respects, except for a persistent Q wave in lead one.

FIRST SYMPTOMS

At first, this man had digestive symptoms, and a physical condition which could account for it. He next developed an anginal syndrome, which, we are taught, occurs in diaphragmatic hernia, and is sometimes mistaken for coronary disease. This illustrates the possibility of the coexistence of two conditions, either of which alone could account for the symptomatology. It also illustrates the danger of resting on an original diagnosis without further investigation and observation.

Case 3, was a sixty year old female, who was admitted to the hospital for an operation for cholelithiasis. At the request of her family physician, who did not suspect coronary disease but was concerned over her hypertension, an examination was made. On careful questioning, it was ascertained that the severe pains in the right upper quadrant were related to effort. Subsequent studies confirmed the absence of disease of the gallbladder.

Case 4, was a white male, forty-three years old, a business executive. He came to us with a history of several attacks of "gas" during the past week, and a fullness in the substernal and epigastric regions which interfered with his catching his breath satisfactorily. He felt that he would be all right if only he could bring up the gas. He had had a similar sort of feeling when walking several blocks for a period of about three years. Examination revealed a blood pressure of 154/100 and heart sounds of normal quality. Teleröentgenography showed a slight enlargement of the left side of the heart in its transverse diameter. The electrocardiogram revealed changes in the S-T intervals suggestive of myocardial infarction. The diagnosis was not clear cut, but certainly, sufficiently suspicious to justify placing him on a rest cure. He was advised to leave his business and go away for at least two months. However, he found it necessary to put his affairs in order first. Two weeks later he had a recurrent attack of "gas" and was put to bed by his family physician. He got up in the middle of the night to go to the bathroom, and never came back.

This case illustrates, apart from the prominence of the digestive symptoms, the importance of keeping the patient in bed and assuming the presence of coronary thrombosis, even though the typical symptomatology is not present. His family history was interesting in that his father and three uncles died of the same condition.

Case 5, a fifty-nine year old white woman, complained of "gas" and indigestion following certain foods, which gave her pain in the epigastrium, at times radiating up into the chest. This had been present for six weeks, during which period she had been treated for a gastric condition. Physical examination revealed distant heart sounds and a to and fro friction rub along the left border of the sternum. An electrocardiogram showed the typical changes in the S-T intervals and T waves.

This case illustrates the importance of taking electrocardiograms in all patients over thirty having digestive symptoms. The typical heart signs present in this particular instance relegated our electrocardiogram to a confirmatory rôle, but often it will reveal coronary disease when no other evidence exists.

DIAGNOSIS

Before proceeding further, it may be well to clarify our use of terms. In no other condition has there been so free a use of improper terminology, even on the part of the best physicians of our time. The commonly used term "angina pectoris" should be confined to the description of a type of pain—"pain in the chest." It is not a disease entity. "Coronary sclerosis" is a disease of the heart in which the arteries and arterioles are narrowed and the nutrition of the myocardium is seriously impaired. The circulation may be adequate most of the time, but when special effort makes a further demand on the cardiac reserve, the circulation becomes inadequate, and myocardial anoxemia exists. This results in a typical pain, called angina pectoris because of its location. As the process of sclerosis and narrowing continues, it requires less and less effort to produce angina. Finally, the narrowing may become so marked that actual closure occurs, with the resulting infarction. Infarction may also be produced at any time during the course of coronary sclerosis, even early, if a thrombus forms and occludes the vessel. In either case, we have "coronary occlusion."

The attacks with which we are most familiar are those which begin suddenly, while the patient is at rest. Thus, they may occur during sleep, and very often while resting after a heavy meal. Typically, the pain is very intense, is felt substernally, and may be referred upward, downward, or in any direction. In some patients it is referred entirely to the abdomen, and then may bring to mind an acute abdomen or a cholelithiasis. In others it is referred to the jaw, and we know of one case that had several teeth removed as a result. Radiation to the left shoulder and down the left arm often calls forth a diagnosis of arthritis or neuritis. The pain is described as burning, cramping, boring, crushing, or vise-like in character and is accompanied by a sense of choking. It is constant, and not affected by nitrites. The victim is restless, suffers from mental anguish, and knows full well that something dreadful has happened. Death may occur suddenly within a few minutes or a few hours, or recovery may take place spontaneously if a small vessel is involved. When the pain is epigastric, the added presence of symptoms such as belching, nausea, constipation, and vomiting may call forth the erroneous diagnosis of "acute indigestion." We venture to believe that no drug has been used in greater quantities for the emergency treatment of coronary occlusion than bicarbonate of soda.

Moreover, it is our intention in this paper to emphasize the fact that a large percentage of patients experience no pain whatever. Boyd and Werblow* reported a series of 127 cases of proven coronary thrombosis. Of these, approximately one-third manifested no pain. Such patients may complain of choking, dyspnea, inexplicable fatigue, digestive symptoms, or of nothing at all but a vague fear that all is not well.

CHANGES

Those patients who survive the onset may exhibit any or all of the following changes: A fall in blood pressure. An increase in the heart rate. The development of irregularities, the most common of which are paroxysmal auricular fibrillation, extrasystoles, heart block, and ventricular tachycardia. The first heart sound may become muffled and impure. The development of a pericardial friction rub over the area of infarction may be noted. A rise in temperature, usually not above 101 degrees, and the development of a leucocytosis, usually below 20,000, are common manifestations. The sedimentation rate rises during the first few days and persists until the area of infarction has healed. When myocardial failure occurs, cough, dyspnea, cyanosis, râles at the lung bases, and hepatic enlargement appear.

In connection with these findings, it should be emphasized that it is impossible to predict the seriousness of the lesion from the severity of the symptoms. A patient who for days is

*Boyd, L. J. and Werblow, S. C.: Coronary Thrombosis Without Pain, American Journal of Medical Sciences 194:814 (Dec.) 1937.

progressing favorably may suddenly die, while another who has had advanced congestive failure, marked irregularities, an imperceptible pulse, and a blood pressure that cannot be measured may recover.

Another point which deserves emphasis is this. It is often impossible to tell from heart sounds whether or not a heart is sick. This may seem a very elementary statement; yet we feel it to be important enough to repeat. We have seen instances of a physician placing his stethoscope on a patient's chest and venturing the opinion that "the heart is all right." This is a dangerous and inexcusable practice. We have heard heart sounds which to us seemed perfectly normal in a case of congestive failure twenty-four hours before exodus. In the typical case, of course, either the heart sounds become distant or inaudible, or the first sound becomes muffled, or gallop rhythm ensues, or sudden irregularities develop. However, in a very great proportion of cases no change that we are able to determine occurs in the heart sounds. Hence, the physician who fails to take and make use of a careful history, and who fails to utilize the accessory methods of diagnosis, is making a grave mistake.

CAUTION IN DIAGNOSIS

A word of caution is necessary in the differential diagnosis between gall-bladder and coronary disease. Gall-bladder dye, especially when given intravenously, seems to have precipitated many coronary closures. The procedure of examination should be the ruling out of coronary thrombosis, rather than the elimination of the other conditions. Where dye is given, the patient should be kept very quiet and observed closely. We do not advise intravenous administration in any case where coronary thrombosis or sclerosis is a possibility.

Undoubtedly the most important contribution of electrocardiography to medicine has been its aid in the diagnosis of myocardial infarction. The curves which are obtained tend to vary a good deal, depending on the location and extent of the infarct. At any one time, it is possible to obtain a tracing which is essentially normal. This is particularly true if it is taken early, before much muscular change has occurred. Inasmuch as the differential diagnosis is so often being made shortly after the onset of symptoms, the great importance of taking serial electrocardiograms is evident. The important changes take place in the QRS complex, the S-T segment, and the T wave. The changes in the S-T segment take place first and ordinarily disappear in three or four days, hence, are probably due to the acute muscle injury. The T wave changes occur next, and may persist for months, but eventually disappear. The QRS changes are the most permanent, and are probably due to the loss of functioning muscle.

THROMBOSIS IN CORONARY ARTERY

If anterior infarction has occurred, it may be assumed that the thrombosis has occurred in the left coronary artery. The infarct is usually located at the apex of the left ventricle. The typical results in the electrocardiogram are: (1) A high take-off and elevation of the S-T segment in lead one, with a low take-off and depression of the same segment in lead three; (2) Inversion of the T wave in lead one and increase in the height of the T wave in lead three; (3) Usually, a diminution in the amplitude of the QRS complex in lead one, and possibly in the other leads also; (4) Appearance of a well marked Q wave in lead one. This is regarded as the most permanent change in the tracing, and sometimes is the only evidence in the first three leads of an old coronary thrombosis.

Posterior infarction is usually located at the base of the left ventricle, and is due to closure of the right coronary artery, or the circumflex branch of the left. The electrocardiographic changes are the reverse of those in anterior infarction: (1) A high take-off and elevation of the S-T interval in lead three, with a low take-off and depression in lead one; (2) An inverted T wave in lead three; (3) A wide and deep Q wave in lead three.

The precordial or fourth lead has been of inestimable value in certain doubtful cases. The typical case of infarction, having the above described changes, needs no confirmation in lead four. However, not all cases give such pictures. It is useless to describe the changes, unless we present our method of taking lead four. We do so in accordance with the recommendations of the Committee on Precordial Leads of the American Heart Association, published in a supplementary report in the *Journal of the American Medical Association*, February 26, 1938. Lead four F is that in which the precordial electrode is placed at the outer border of the cardiac apex, while the second electrode used is that connected to the left leg. The galvanometer connections are made in such a way that positivity of the precordial electrode will produce an upward deflection in the finished record; hence, the left leg wire is connected to the precordial electrode, while the left arm wire is connected to the left leg electrode, with the lead switch on lead three.

DIAGNOSTIC CHANGES

In anterior myocardial infarction, the diagnostic changes are: (1) Elevation of the S-T segment (at least two mm.) This takes place first, and ordinarily disappears in less than a week, but may persist as long as a month. It will often be present long after the elevation in lead one has disappeared. Occasionally, these changes will make the diagnosis, especially when low amplitude in lead one prevents recognition of S-T elevation or T wave inversion; (2) Before the S-T interval has returned to the iso-electric, inversion of the T wave begins to occur, and after one or two weeks, large, sharply inverted T waves are present. These may persist for months, but eventually disappear; (3) Changes occur in the QRS complex. The initial upward or positive deflection seen normally in lead four F disappears; the entire QRS group consists entirely of a downward (Q) wave. This usually occurs when the infarct is large. If it is small, or if the apical electrode is close to the edge of the infarct, W shaped QRS complexes may be found. These changes are, as a rule, permanent. It should be noted that the presence of bundle branch block greatly modifies the fourth lead, so that changes in the QRS complex or S-T interval cannot be interpreted as being due to acute infarction in the presence of bundle branch block.

Because of the distance of the posterior surface of the heart from the apical electrode, posterior infarcts are not so readily revealed. No characteristic QRS changes occur. Early, S-T segment depression is seen; this is significant only if more than two mm. Later on, large, sharply upright T waves appear. As a rule, the changes in lead three are more clear-cut, and should be correlated with the modifications in lead four.

It should be noted that the fact that there are changes in the curves from day to day is as significant as the nature of the changes themselves. In addition to the typical variations described above, there may be varying degrees of heart block, as well as transient arrhythmias. Another point we would call attention to is this—that so far as we know, there is no relationship between the changes in the electrocardiographic tracings and the patient's prognosis. Finally—a warning. It is never justifiable to move the patient or inconvenience him in any way, in order to obtain an electrocardiogram. When technical difficulties arise, the patient's welfare is paramount.

TREATMENT

The first thing to remember in the handling of a suspected coronary thrombosis is that as long as the possibility of this condition is present, we must be consistent in our treatment. It is dangerous to relax our vigil because the diagnosis has not yet been confirmed. In other words, proper treatment must be instituted right from the beginning, as soon as the presence of a closure is suspected.

The most important objectives in the treatment of coronary thrombosis are absolute rest and the relief of pain. When one considers the pathology of this condition, one realizes the necessity for absolute rest. Closure of

the artery involved shuts off the blood supply to a considerable area of cardiac muscle. The most important organ in the body receives a terrible and devastating wound. With the cessation of blood flow to the part, the involved tissue undergoes necrosis, and as a consequence is greatly weakened. A large percentage of hearts so afflicted fail to recover, and the weakened portion either ruptures, or else dilates to an extent sufficient to embarrass the general circulation seriously. The strain on the heart at this time is very great. Any additional strain, be it so little as that occasioned by the lifting of an arm, may be enough to produce disaster. The patient with a fractured leg is treated with the utmost care and delicacy, and it is customary to cut the pants off the leg so as not to disturb the injured parts. An injured heart certainly deserves the same consideration; yet how often does one see a patient with a recognized coronary occlusion walked to a waiting taxi cab and into a hospital. It is a typically human failing, of which we physicians are often guilty—the tendency to minimize that which is not clearly visible to the eye. The secret of success in the handling of these cases is the keeping in mind at all times of the pathological changes in the heart. A full understanding of what is going on in the area of infarction can lead to no other but the proper method of treatment.

RELIEF OF PAIN

Accordingly, morphine sulphate is given for relief of pain and enforcement of rest. It should be given in amounts and often enough to secure the result desired. A q.4.h. order may not be successful; very severe pain may require repetition two or three times within the hour. The guide to dosage is not in the text-book, but in the response of the patient himself. If the patient is found on a bed or couch, he should not be moved to another bed unless absolutely necessary for his own welfare, and then only with the greatest of care. He should not be undressed except in such a way as to require no movement. A trip to the hospital has undoubtedly killed many a patient with this condition.

Rest, mental as well as physical, remains the paramount factor in the treatment of the entire period of infarction to the stage of healing, usually four to eight weeks. In the first two weeks or so there should be absolute rest, even when no pain is present, and the patient seems so healthy as to tempt one into carelessness. He should not be allowed to feed himself. The temptation to order daily enemas is a dangerous one, especially in the first few days. The disturbance incident to the procedure is too great; the patient is not eating, and the rectal stasis for two or three days is by far preferable to an exodus on a bed pan.

NO VISITORS

One of the most important rules in securing genuine rest is "no visitors!" This should apply to everyone in the family except the nursing member. We have seen a patient transferred into a pitch of nervous excitement by tales of former acquaintances with similar heart ailments, and sorry endings. Case 2 was told of the death from a heart attack of a business associate, and required double doses of morphine to get back to his former peace of mind. Business associates who plead for a few moments in which to reassure the patient, invariably communicate some hints of financial setbacks. There should be no exceptions made; the patient's welfare lies in vegetative existence.

Before leaving the subject of mental rest, it may be well to refer to one other consideration. The above rules must be enforced and the pathological changes always kept in mind. However, under no consideration must the seriousness of the affair be communicated to the patient himself. Too often have we seen patients who have recovered from coronary thrombosis, only to be left with an incurable anxiety neurosis. During all his efforts at keeping the patient quiet, the physician must at all costs preserve an air of optimism and reassurance in the sick room.

There are patients who cannot tolerate morphine or its derivatives. They may be handled satisfactorily with the aid of barbiturates or other sedatives.

When genuine rest has been secured, the greater part of the treatment has been accomplished. However, there are other measures which are of undoubted value, and which may in certain cases be life-saving. These will be enumerated for convenience:

(1) If the patient is in deep shock when first seen, the hypodermic injection of epinephrine in doses of 0.5 to one cc. of a 1:1000 solution.

(2) Oxygen: When there is present marked dyspnea, cyanosis, or severe precordial pain unrelieved by morphine, oxygen, unless given at the proper temperature and rate may prove to be a boomerang. The simple method utilizing a nasal catheter is considered by many authors as efficacious as the more complex methods, while it is certainly more convenient in the home, and much less frightening for the apprehensive patient.

(3) In the presence of complete heart block, with or without Stokes-Adams syndrome, epinephrine in the usual dosage may be repeated until the tendency to syncope has disappeared.

(4) Sudden attacks of very rapid heart beat are usually due to paroxysms of ventricular tachycardia. These are characterized by a rate over 160, regularity, and an absence of slowing from carotid or ocular pressure. Quinidine sulphate in five grain doses is usually effective and may be repeated every four hours if necessary to keep paroxysms from recurring. Since idiosyncracy to quinidine is fairly common, it is wise to give a small dose first. Furthermore, this drug is contraindicated in heart block of any degree, even if it be only a prolongation of the PR interval. Hence, the importance of securing electrocardiographic tracings is apparent.

(5) The question of diet is of major importance. In keeping with the principle of rest, we give a low caloric diet, with the idea of resting the gastrointestinal tract and keeping the body weight at a minimum. This is, of course, more important where the patient has been overweight. At first, the diet is liquid. Later on, it is raised gradually from 500 to 800 calories per day.

(6) The restriction of fluids to 1500 cc. a day is a good rule. However, during the first day or two, when the patient is in deep shock, and is unable to take fluids by mouth, normal saline may be given by hypodermoclysis. When oliguria is present, glucose solution by vein, in 10 to 20 per cent concentration, is usually beneficial.

(7) The usual case of coronary thrombosis does not require digitalis. Its use should be limited to those cases manifesting auricular fibrillation with a ventricular rate rapid enough to embarrass the circulation.

(8) Aminophyllin and other xanthine derivatives are widely used, in some cases even being given intravenously. They are of questionable value. The results of clinical investigations have varied to such an extent, that we feel many more years of study, particularly of large series of cases with proper controls, will be necessary before we can accurately judge the merits of these drugs.

Certain drugs must be avoided, because of their dire effects in patients with coronary occlusion.

(1) Insulin should be given only when ketosis is present, and then only with the greatest of caution. By this we mean small doses in conjunction with adequate glucose to cover. The hypoglycemia induced by even ten units of insulin has been found sufficient to precipitate death. Glycosuria without ketosis need not cause concern.

(2) Where syphilis is present, it must be considered of secondary importance, and the patient is safer if no antiluetic treatment is given.

(3) Nitrites are inadvisable, because the great change in the mechanism of the circulation thereby induced constitutes a real danger to the crippled heart.

SUMMARY

We have presented a resumé of the present status of the diagnosis and treatment of coronary occlusion. Several cases have been

briefly described, in order to illustrate various atypical forms of onset of the condition. In discussing diagnosis, it has been stressed that pain might be insignificant or absent. Electrocardiographic diagnosis has been brought up to date and evaluated. A plea has been made for accurate terminology in referring to any form of coronary artery disease. In our discussion of treatment, we feel that too much emphasis can not be placed on the vital importance of absolute physical and mental rest. We have presented what we consider to be essential therapeutic measures, and have enumerated several dangers to be avoided.

ADDITIONAL DATA

Since the writing of this paper, Gorham and Martin have reported in the Archives of Internal Medicine for November, 1938, a series of one hundred fatal cases of coronary occlusion all proven by autopsy. Of these, 45 per cent had no pain.

STAPHYLOCOCCUS SEPTICEMIA*

(CASE REPORT)

By JOHN F. MORRIS, M. D.
Huntington, West Virginia

STAPHYLOCOCCUS SEPTICEMIA is so generally fatal that an instance which goes on to recovery seems worth reporting. Accordingly the following case report is herewith presented:

M. E. R., a white male, age 37, was admitted to the hospital December 8, 1938, with the complaint of hemorrhoids, which had been present for seven years, but had become quite painful a week prior to admission. In addition, he had experienced hesitancy in voiding for two or three days.

The past history and family history were negative. Temperature, pulse and respiration were normal on the day of admission. The white cell count was 16,500 with 83 per cent polymorphonuclears. The physical examination was essentially negative except for gangrenous internal hemorrhoids, which were excised under spinal anesthesia.

For several days succeeding the operation he had retention and was catheterized seven times. His temperature reached 101 degrees for five days postoperative. On December 25, 1938, his condition was satisfactory and he was discharged from the hospital.

On January 23, 1939, the patient was readmitted with the complaints of pain in the rectum and soreness in the perineum. He stated that four days previous to the second admission he developed retention and was catheterized by the family physician. At that time he was told that his prostate was enlarged. In addition to the retention, he had had several "green core" boils on his arms and back. On this admission physical examination was essentially negative except for a slightly enlarged and somewhat boggy prostate. The white cell count was 13,550 with 70 per cent polys. The urine showed a very faint trace of albumin and six to eight pus cells per high power field. Gram stain of the urinary sediment showed Gram negative staphylococci, Gram negative long rod bacilli and an occasional short chained streptococcus.

His temperature became septic, accompanied by several hard shaking chills. Blood specimens did not agglutinate with para A or para B, typhoid O or H, or B abortus. On February 1, 3, 6 and 11, blood cultures revealed nonhemolytic staphylococcus albus. At this time, an examination of the heart and

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*From the Medical Service, Chesapeake & Ohio Hospital, Huntington, West Virginia.

lungs were negative, the spleen was not palpable and the patient's lips and nail beds appeared cyanotic.

Beginning February 3, and during the succeeding ten days, the patient was given sulfanilamide gr. XV and citrocarbonate drams i q. four h., five blood transfusions of 400 to 500 cubic centimeters each, and staphylococcus antitoxin (Parke-Davis & Co.) 80,000 units. The staphylococcus antitoxin was given intramuscularly except for one dose of 10,000 units, which was given intravenously. The intravenous method was not repeated due to a vague discomfort complained of by the patient. While the treatment was being carried out, the daily peaks of temperature gradually descended until February 13, 1939, when the temperature dropped to normal and stayed there except for a rise to 100.4 degrees on February 14. Accompanying this slight rise, were pruritis and flushing which was interpreted as a mild delayed serum reaction. The blood cultures on February 18 and 21, 1939, were negative, the white cell count was 12,050 with 76 per cent polys, 80 per cent hemoglobin (Dare) and 3,980,000 red cells. The urine was negative except for an occasional pus cell. The patient now feels well and is rapidly gaining strength.

SUMMARY

A case of nonhemolytic staphylococcus septicemia was successfully treated with sulfanilamide, repeated blood transfusions and staphylococcus antitoxin.

Tuberculosis Abstracts

Furnished Through the Courtesy of the West Virginia Tuberculosis Association

The slogan of this year's Early Diagnosis Campaign is "Help Find Early Tuberculosis." The subslogan "eight out of ten who come to the sanatorium are advanced cases" is based on national statistics which show that only about 20 per cent of sanatorium admissions are classified as minimal cases. The classification is not an arbitrary one but conforms to standards agreed upon by eminent tuberculosis specialists. Every practitioner should be familiar with the terms "minimal, moderately advanced and far advanced." They are defined in "Diagnostic Standards—Tuberculosis of the Lungs and Related Lymph Nodes" published by the National Tuberculosis Association. The most recent edition, 1938, brings the standards into line with current thought. The three stages of pulmonary tuberculosis are defined as follows:

EXTENT OF PULMONARY LESIONS

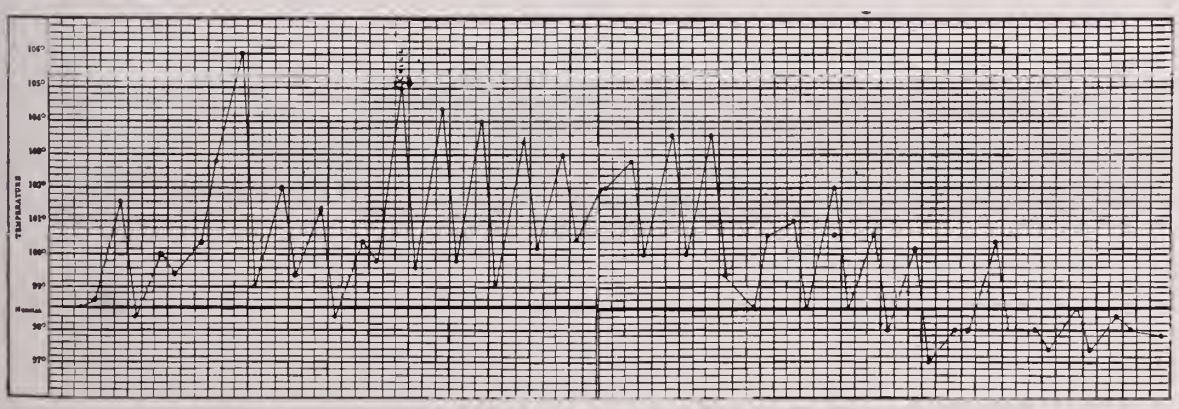
Minimal: Slight lesions without demonstrable excavation confined to a small part of one or both lungs. The total extent of the lesions, regardless of distribution, shall not exceed the equivalent of the volume of lung tissue which lies above the second chondrosternal junction and the spine of the fourth or body of the fifth thoracic vertebra on one side.

Moderately Advanced: One or both lungs may be involved, but the total extent of the lesions shall not exceed the following limits:

a. Slight disseminated lesions which may extend through not more than the volume of one lung, or the equivalent of this in both lungs.

(Continued on page xxvii)

TEMPERATURE CHART



President's Page

For a work well done in orderly manner the West Virginia State Medical Association has every reason to congratulate the Forty-fourth Legislature which adjourned March 11, 1939. For the sympathetic understanding and careful consideration accorded the recommendations of the State Medical Association by the legislators we should be grateful.

Elsewhere in this issue of THE JOURNAL there appears a brief review of legislation in which the Association was interested, and to those who read this review it must be obvious that the Association fared unusually well. For the satisfactory results obtained, particularly in the passage of the Association-sponsored "Prefix Doctor Bill," and the defeat of the so-called "Faith Healing Bill" sponsored by the Christian Science Church, we extend heartiest congratulations to our Legislative Committee composed of Dr. Robert King Buford, Dr. B. H. Swint, Dr. G. H. Barksdale and Dr. A. E. McClue.

Due to the effective work of our Legislative Committee and the helpful cooperation accorded by hundreds of individual members of the Association throughout the state who supported the Association's recommendations in person or through communication, we feel confident that the best interests not only of the medical profession, but also of the public in general, have been served in the enactment of the "Prefix Doctor Bill," and in the decisive defeat again handed the "Faith Healing Bill."

In these developments, as well as in numerous others of similar or equal importance to the health and sanitation of the people of the State, such as the defeat of the bill which would have placed the sanitary regulation of milk in the hands of the Department of Agriculture, thus rendering ineffective the standard milk ordinances adopted by the several municipalities in this State, none had more prominent part than Dr. Ward Wylie, senator from the Wyoming-Raleigh district, who was chairman of the Senate Committee on Medicine and Sanitation; Delegate Claude Swann of Cabell County, chairman of the Medicine and Sanitation Committee in the House of Delegates, and Mrs. Nell Walker, delegate from Fayette County and a loyal friend of the medical profession and champion of a sound public health policy.

The only real disappointment in the work of the legislature was the reduction in the appropriation for the Department of Public Assistance for the next biennium. We realize that this reduction was predicated on the belief that improved economic conditions would bring about the absorption by industry of a considerable percentage of the relief population. If this develops, no one will suffer and we can feel that the legislative reduction was justified. However, if during the next two years the relief population is not reduced, there must necessarily follow a decided curtailment of the medical relief program. We hope that the reduction in relief population will correspond to the reduction in funds, so that this important work may continue.

Ray M. Bobbitt

President.

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Mr. JOE W. SAVAGE.....Charleston

THE WAGNER BILL

On February 28, 1939, Senator Wagner of New York introduced into the United States Senate a bill "To provide for the general welfare by enabling the several states to make more adequate provision for public health, prevention and control of disease, maternal and child health services, construction and maintenance of needed hospitals and health centers, care of the sick, disability insurance, and training of personnel; to amend the Social Security Act; and for other purposes."

The specific subjects and activities covered by the Wagner bill are:

Maternal and child health services.

Services for crippled children.

Administration of grants to states for maternal and child welfare.

Public health work.

Grants to states for hospitals and health centers.

Grants to states for medical care.

Grants to states for temporary disability compensation.

Rules for determining financial status of states.

These activities are in line with the so-called National Health Program recommended in July, 1938, by President Roosevelt's Interdepartmental Committee. The House of Delegates of the American Medical Association considered these recommendations last fall and approved expansion of public health, expansion of medical care to the indigent and expansion of hospital construction, provided the needs for such expansion could be demonstrated. The vague administrative control set up in the Wagner bill, which gives the various administrating agencies an almost free hand in spending the appropriated funds for every conceivable purpose, certainly does not demonstrate or attempt to demonstrate these needs.

Although the Wagner bill does not establish a system of compulsory health insurance, nor any specified plan of medical care for the public, it does encourage the establishment of government controlled programs of providing medical care on a state-wide basis by providing for the allocation of federal funds to the states where state-wide programs are worked out to meet with the approval of the Social Security Board.

The Wagner bill appears to be an initial step in the direction of a gigantic system of federalized medicine covering practically every phase of medicine and public health. Proponents of the bill point out that an appropriation of only ninety-eight million dollars is called for, but they neglect to emphasize that the expansion called for will, in a few years, reach the staggering sum of almost one billion dollars each year. If we add to this proposal relating to the program for general medical care for a large portion of our population, it is estimated that the annual cost for this part of the program alone would be between three and four billion dollars annually.

The enactment of the Wagner bill would no doubt please the many individuals and groups seeking to bring about unlimited paternalism and federal control of all activities. We feel that the Wagner bill should be opposed because it is economically unsound, it would add an enormous burden to the already staggering tax load, its vague provisions would provide almost unlimited authority to federal agencies, it would give the federal government almost complete domina-

tion over state and local activities and it would encourage extravagance and inefficiency in the fields of medical care and public health.

OUR WEST VIRGINIA SPA

In this issue of the JOURNAL we are publishing a communication from our two distinguished Association members who are connected with the Greenbrier Hotel at White Sulphur Springs, Dr. Guy Hinsdale and Dr. George M. Caldwell. This communication calls attention to a fact which we in West Virginia are prone to overlook—the fact that The Greenbrier is one of the outstanding spas in the United States.

The medical profession should be particularly interested in the medical department of The Greenbrier, and the facilities which it has to offer. We feel that our Association members should become more "spa conscious" when thinking in terms of this nationally known resort. Certainly our members who attend the annual meeting at White Sulphur Springs next July should take advantage of the opportunity to visit with Dr. Hinsdale and Dr. Caldwell and to inspect their medical unit. We daresay there are few doctors in West Virginia or elsewhere who are thoroughly familiar with the advantages of a spa from a medical standpoint.

GREENBRIER INTERSTATE

We take this occasion to extend our heartiest good wishes to the newly formed Greenbrier Interstate Medical and Surgical Society which will hold its first scientific session at the Greenbrier Hotel, White Sulphur Springs, on Monday, April 17, 1939. The new organization was recently formed by the doctors of Greenbrier County, West Virginia, and Allegheny County, Virginia, for the purpose of presenting outstanding scientific programs. We understand that the interstate society will meet three or four times each year and that all meetings will be at the Greenbrier Hotel, White Sulphur Springs.

The new organization has invited all Association members in good standing to attend the April 17 meeting. The program is published under the General News heading in this issue of the JOURNAL. We wish the Greenbrier Interstate Medical and Surgical Society a successful meeting and a brilliant future.

BARBERS AND BEAUTICIANS

Physicians practicing in West Virginia have been examining and taking blood tests on barbers and beauticians each year for the past five years. All of these applicants pay their physician a fee for the examinations and blood tests. The West Virginia Public Health Council has made a recent ruling regarding the disposition of cases found to have positive serological tests for syphilis.

Mr. E. L. Peters, Director of the Bureau of Barbers and Beauticians, states that the following procedure is carried out upon receipt of a positive diagnosis of syphilis in a barber or beautician. Any applicant applying for registration who submits a report showing that they have a positive diagnosis of syphilis must submit to treatment from a reputable physician for a period of at least forty-five days. Upon receipt of a letter from the physician stating that he has administered such treatment, the certificate is issued with the definite understanding that the applicant remain under treatment from his physician for a period of not less than two years. During this period the physician must report every six months to the bureau concerning the treatment of the case and stating whether or not the applicant is cooperating. If, after the period of treatment, the applicant develops a negative Wassermann he is not discharged from his obligation until he has submitted three negative laboratory reports at six month intervals. He is then placed on probation with the recommendation that he visit his physician periodically.

Below will be found the number and percentage of positive serological tests for syph-

ilis among the total number of beauticians and barbers examined.

TOTAL—MALE AND FEMALE

Year	Number Examined	Number Positive	Percentage Positive
1934	3,876	210	5.4
1935	4,122	207	5.0
1936	4,094	172	4.2
1937	4,539	209	4.6
1938	3,975	158	3.9
TOTAL	20,606	956	4.6

It is felt that much of the success of this program has been possible by the cooperation of local physicians. It represents a distinct physical improvement of this group of citizens which is so important because they come in such close contact with a large percentage of our population. The barbers and beauticians in this state should be benefitted materially by their yearly check-up by their physician.

THE "DOCTOR" PREFIX

On March 8, 1939, the West Virginia Legislature enacted an Association sponsored measure in regard to the unlawful use of the prefix "Doctor." This new law will directly affect many of our Association members whose window or door signs now read, "Dr. John Doe." We therefore urge careful reading of the following excerpt from the new statute.

"It shall be unlawful for any person to use the prefix "Doctor" or "Dr." in connection with his name in any letter, business card, advertisement, sign or public display of any nature whatsoever, without affixing thereto suitable words or letters designating the degree which he holds." This bill becomes effective on June 6, 1939. After that date, the above language will be a part of the West Virginia code. The complete text of the statute will be found in the legislative report elsewhere in this issue of the JOURNAL.

The purpose of the bill is, of course, apparent. It will effectively curb the attempts of all cultists who endeavor to pass themselves off as regular doctors.

We will now get back to Dr. John Doe to illustrate how the new law will affect him. On his office door, his office windows, and in the building directory in the lobby, his name is listed as "Dr. John Doe." After June 6, 1939, he must add either the initials, "M. D.", or the words, "Medical Doctor", following his name. He may, or may not, use the prefix "Dr.", according to his personal preference. The same rule will apply to osteopaths, chiropractors, optometrists, ministers and all persons who use the "Dr." prefix.

There are still a few of our older Association members who are duly licensed to practice medicine in West Virginia but who do not hold a medical degree. We have taken this matter up with the Attorney General and it has been suggested that these men, who are licensed to practice medicine, use the term "licensed physician."

RARE DIABETIC GANGRENE

Reporting two deaths from diabetic gangrene of the cheek, Joseph Millett, M. D., Hempstead, N. Y., points out in *The Journal of the American Medical Association* for March 25 that only three other cases involving the check have been described in medical literature and all have proved fatal.

Although patients have recovered from diabetic gangrene of other parts of the face, Dr. Millett says, when the cheek has been involved the infection has always been fatal because it spreads to the general circulation.

"Patients with lesions which involved parts of the nose, the hard palate, the eyelids, the skin of the nose and ears and the lip have recovered," the author states.

Describing the infection, Dr. Millett says that diabetic gangrene of the face does not even remotely resemble the carbuncle seen in skin infections in diabetes. The disease typically begins with painful red, swollen, spreading lesions, such as occur in erysipelas, which suddenly change to a dusky purple, with or without the development of blisters. There is a subsequent breakdown of tissue with the discharge of pus.

Unlike diabetic gangrene of the extremities, which usually affects the aged, the disease can occur at any time of life when only the face is involved.

General News

LEGISLATIVE REPORT

Now history, the forty-fourth regular session of the West Virginia Legislature was productive of much legislation of interest to the medical profession. By and large, the ultimate results of legislative action during the recent session should be considered "satisfactory" by the West Virginia State Medical Association, insofar as that action related to measures in which the Association was more than passively interested.

In the field of public health and medical practice, four measures in which the medical profession had more than a passive interest, either "pro" or "con", were accorded the consideration requested thereon by the Association.

Two bills which the Association favored—Senate Bill No. 159, relating to the unlawful use of the prefix "Doctor" or "Dr."; and House Bill No. 117, providing certain measures to decrease the communication of syphilis and to prevent its spread —were enacted into law by the Legislature. Two other bills which the Association believed were contrary to sound public policy—Senate Bill No. 101, relating to the regulation of milk and milk products; and Senate Bill No. 152 and House Bill No. 255, both of which proposed the opening up of the medical practice act to permit the practice of Christion Science faith healing on a commercial basis—were not enacted by the Legislature.

Senate Bill No. 159, which will become law on June 6, provides that "it shall be unlawful for any person to use the prefix "Doctor" or "Dr." in connection with his name in any letter, business card, advertisement, sign or public display of any nature whatsoever, without affixing thereto suitable words or letters designating the degree which he holds. Any person who shall violate the provisions of this section shall be guilty of a misdemeanor, and upon conviction thereof shall be fined for each such offense not less than ten nor more than five hundred dollars, or imprisoned in the county jail not more than twelve months, or both fined and imprisoned, in the discretion of the court." This bill was introduced and sponsored at the request of the Medical Association by Dr. Ward Wylie, senator from the Wyoming-Raleigh district.

House Bill No. 117, which will become law on May 26, amends the marriage laws of the state so as to provide that before any license is issued each applicant shall file with the clerk of the county court certificates from any physician licensed in the state, stating that each party has been given such examination, including a standard serological test, as may be necessary for the discovery of syphilis. This act further provides that the examination must be made not more than 30 days prior to the date of application for the marriage license, and before the license can be issued, the certificates of the examining physician must state that, in the opinion of the examining physician, the person therein named either is not infected with syphilis or, if so infected, is not in the state of the disease which is or may later become communicable. The act provides that the standard serological test required shall be a laboratory test for syphilis which is approved by the state commissioner of health, and shall be performed by the state department of health or by a laboratory approved for this purpose by the state department of health. Each physician's statement shall be accompanied by a statement from the person in charge of the laboratory making the serological test, or from some other authorized person setting forth the name of the test, the date it was completed, and the name and address of the person whose blood was tested, but not stating the result of the test, and shall be attached to the application and forthwith filed with the licensing authority. The physician's statement and the laboratory statement shall be on the same form sheet. Upon a separate form, a detailed report of the laboratory test showing the result of the test shall be transmitted by the person in charge of the laboratory to the physician. Following the passage of this bill, the State Public Health Council began consideration of the mechanics necessary to make the new provisions of the marriage license law effective, and by the effective date of the act it is expected to have completed the preparation of the necessary forms and the list of laboratories to be approved, all of which data will be issued through the State Health Department. Sponsored by the State Department of Health, House Bill No. 117 was introduced and espoused in the Legislature by Mrs. Nell Walker, delegate from Fayette County, and immediately drew the support of many civic clubs and groups throughout the state.

Although the Medical Association's legislative interests were mainly in matters related to the fields of public health and medical practice, and the proper safeguarding thereof against unsound poli-

cies and practices, the Association's legislative committee maintained more than a passive interest in tax legislation. With reference to this legislative phase, the ultimate results of the session should be highly pleasing to the medical profession, which might have been seriously imposed upon had several legislative proposals been enacted into law. Although nothing was done by the Legislature to change the status of the doctor's relationship to and responsibility for payment of the consumer's sales tax on supplies purchased from West Virginia business houses, it is pleasing to be able to report that the right of the medical profession and the hospitals to purchase from their customary out-of-state sources of supply, without a tax being levied upon the goods purchased, remains inviolate. The so-called "use tax" bill (House Bill No. 273), which was introduced in the Legislature (and described briefly in the March issue of THE JOURNAL), was not enacted. Although this bill was designed mostly to "protect border business" and less as a revenue measure, its provisions would have imposed a hardship and inconvenience on doctors and hospitals, particularly as much of their equipment and supplies, including scientific instruments, must be purchased outside the State of West Virginia. As stated previously, goods purchased outside the state may still be transported into the state and used in the state without a tax being levied thereon, but the tax commissioner's recent ruling that the consumer's sales tax must be paid on all items purchased in West Virginia which are not for resale in their original form without charge or processing still applies.

House Bill No. 87, which would have authorized municipalities to levy, among other taxes, a privilege tax on occupations and professions similar to that imposed by the City of Morgantown recently, only to be declared invalid by the Circuit Court of Monongalia County, likewise failed of enactment during the session of the forty-fourth Legislature.

Another interesting and pleasing development in the field of taxation during the legislative session was the amendment of the State Net Income Tax Law to provide that in 1940, and thereafter, the state income tax will not be due and payable until April 15—one month after the Federal income tax is due. This year, and heretofore, both state and federal taxes have been due on the same date—March 15. Likewise, through the enactment of House Bill No. 137, as amended by the Senate, in 1940, and thereafter, donations to bona fide West Virginia charities will be deductible in the computation of net income.

Perhaps the only really serious problem left by the Legislature on the medical profession's doorstep was its action in reducing the general relief appropriation for the Department of Public Assistance $1,300,000 below the amount available during the past two fiscal years. This will mean that considerably less state revenue will be available during the biennium beginning July 1, 1939 and ending June 30, 1941 for medical relief and relief hospitalization. The Governor, in submitting the Budget Commission's appropriation bill embracing the public assistance reduction, stated to the Legislature that the $1,300,000 cut was predicated upon a presumption that private employment would "take up some slack" during the next two years, thus reducing the requirements of the state with reference to the care of the unemployed and the indigent. On the other hand, the governor also left the impression that in the event business conditions do not improve sufficiently to offset the reduction in general relief funds, the latter might be supplemented by an emergency appropriation which could be made by the Legislature, convened in extraordinary session on the call of the governor.

NEW SOCIETY TO MEET

Doctors of Greenbrier County, West Virginia, and Allegheny County, Virginia, have recently formed the Greenbrier Interstate Medical and Surgical Society and the first meeting will be held in the Virginia room of the Greenbrier Hotel, White Sulphur Springs, on the evening of April 17, 1939. All physicians in good standing in their respective county societies are cordially invited to attend. The meeting will be called to order at 8:15 o'clock p. m.

Guest speakers for the opening meeting will be Dr. M. Pierce Rucker of Richmond, Virginia; Dr. J. M. T. Finney, Jr., Baltimore, and Dr. Louis George Herrmann, Cincinnati. Dr. Rucker will speak on "Further Experience with Knotless Sutures in Immediate Perineorrhaphy." Dr. Finney's talk will be on "Developments in the Study and Care of Patients Suffering with Appendicitis." Dr. Herrmann's paper will be "Practical Aspects of Circulatory Disturbances in Extremities."

No formal entertainment program has been arranged for the first meeting of the new society, but it is hoped that the visiting doctors will arrive in the early afternoon in order to take advantage of the many recreational facilities available at the

Greenbrier. No formal banquet has been arranged but guests will have ample time before the meeting to have dinner at the Greenbrier with their parties or friends.

The new Interstate Society will not supplant either the Greenbrier Valley Medical Society or the Allegheny County Medical Society in Virginia. The new society will meet three or four times each year and its chief object will be to present outstanding scientific programs in the congenial Greenbrier atmosphere.

PITTSBURGH OBSTETRICAL TRIP

The annual clinical session of the West Virginia Obstetrical and Gynecological Society will be held in Pittsburgh on April 3-5, 1939, according to a recent notice sent out to members by Dr. E. J. Humphrey, secretary. The program for the annual pilgrimage has already been announced and interested doctors are requested to communicate at once with Dr. Humphrey, 418 Eleventh Street, Huntington.

The opening session will be held at the Magee Hospital and will consist of obstetrical and gynecological operations by Dr. Ziegler and Dr. Cashman and members of the staff. The afternoon session of the first day will be an operative clinic at the Pittsburgh Hospital conducted by Dr. Reeves, Dr. Evans, Dr. Conti and staff members. The annual dinner meeting will be held that evening.

Operative clinics in obstetrics and gynecology will be held for the second morning at Mercy Hospital. The afternoon session will be a symposium at St. Margaret Memorial Hospital under Dr. Paul Titus, to be followed by sessions at the Allegheny General Hospital and the Montefiore Hospital.

The program for Wednesday, April 5, had not yet been finally completed at press time but interested members may obtain this by writing Dr. Humphrey or Dr. H. G. Steele at Bluefield. A large group of Association members interested in obstetrics and gynecology are expected to attend the three day pilgrimage.

PHYSICIANS' ART ASSOCIATION

The American Physicians' Art Association composed of members in the United States, Canada, and Hawaii, will hold its second art exhibit in the City Art Museum of St. Louis, May 14-20, 1939, during the annual session of the American Medical Association. Art pieces will be accepted for this art show in the following classifications: (1) oils both (a) portrait and (b) landscape; (2) water colors; (3) sculpture; (4) photographic art; (5) etchings; (6) ceramics; (7) pastels; (8) charcoal drawings; (9) book binding; (10) wood carving; (11) metal work (jewelry).

Practically all pieces sent in will be accepted. There will be over 60 valuable prize awards. For details of membership in this Association and rules of the exhibit, kindly write to Max Thorek, M. D., Secretary, 850 Irving Park Blvd., Chicago, Illinois, or F. H. Redewill, M. D., president, 521-536 Flood Bldg., San Francisco, California.

INDUSTRIAL PHYSICIANS

The twenty-fourth annual meeting of the American Association of Industrial Physicians and Surgeons with the American Conference on Occupational Diseases and Industrial Hygiene will be held at the Hotel Statler, Cleveland, Ohio, June 5, 6, 7, and 8, 1939. A program of timely interest and importance will be presented by speakers of outstanding experience in all of the medical and engineering problems involved in industrial health. A cordial invitation is extended to all whose interests bring them in contact with these problems. Information regarding hotel accommodations, etc., may be obtained from A. G. Park, Convention Manager, 540 North Michigan Avenue, Chicago.

BOARD OF INTERNAL MEDICINE

Written examinations for certification by the American Board of Internal Medicine will be held in various sections of the United States on the third Monday in October and the third Monday in February.

Formal application must be received by the secretary before August 20, 1939 for the October 16, 1939 examination, and on or before January 1 for the February 19, 1940 examination.

Applications forms may be obtained from Dr. William S. Middleton, Secretary-Treasurer, 1301 University Avenue, Madison, Wisconsin.

SHAVING AND HAIR GROWTH

There is no evidence that shaving causes hair to grow more thickly or changes in any way the texture of the hair, *The Journal of the American Medical Association* says. The only effect is that of moderate stimulation of the scalp, which benefits hair growth.

County Society News

CABELL COUNTY

The Cabell County Medical Society held its regular monthly meeting at the Governor Cabell Hotel on the evening of March 9 with an excellent attendance. The guest speaker of the evening was Dr. Garnet W. Ault, Professor of Surgery, Georgetown University Medical School, Washington, D. C. He spoke on "Rectal Diseases of Interest, Illustrated with Movies in Color." A liberal discussion followed.

Preceding the regular society meeting, Dr. Ault gave a clinical demonstration at St. Mary's Hospital at four o'clock on the afternoon of March 9. The patients presented interesting diseases of the colon, rectum and anus.

JAY L. HUTCHINSON, *Secretary.*

CENTRAL WEST VIRGINIA

The Central West Virginia Medical Society met at Gassaway on February 15. The speakers were Dr. Hugh A. Bailey, Charleston, who read a paper on "Acute Pericarditis," and Dr. P. A. Tuckwiller, Charleston, who spoke on "Tularemia." It was pointed out that while only four cases of this disease were reported in 1937, there were 25 cases reported in 1938.

The following doctors were elected to membership in the society: Dr. Charles H. Dow, Richwood; Dr. R. G. Cutright, Buckhannon, and Dr. J. A. Smith, Gassaway. The next meeting of the society will be held at Richwood and Dr. A. W. Brazda was appointed as chairman of the Arrangements Committee.

A. B. BOWYER, *Secretary.*

EASTERN PANHANDLE

The regular meeting of the Eastern Panhandle Medical Society was held in the Shenandoah Hotel, Martinsburg, at noon on March 8, 1939. Dr. Edward F. Roberts of the Lederle Laboratories presented a Bullowa film on the "Management of Pneumonia", with special emphasis on the treatment with serum. The improvement in mortality in this over other methods of treatment was strikingly demonstrated.

Dr. M. R. Fox spoke on the advantage of early diagnosis of pneumonia.

Dr. G. J. E. Sponseller of Martinsburg was elected to honorary membership in recognition of his many years of unselfish service to his profession and to the public.

A report was made on the Annual Conference of Secretaries and Presidents in Charleston in January. Dr. H. N. Moser, Shepherdstown, was accepted to membership by transfer from Preston County.

M. H. PORTERFIELD, *Secretary.*

FAYETTE COUNTY

"Silicosis" was the scientific discussion topic at the regular monthly meeting of the Fayette County Medical Society held February 28 in the assembly room of the Montgomery Methodist Church at Montgomery. Dr. R. H. Jones, Montgomery, presented a paper on the subject and supplemented his paper with appropriate x-ray studies.

Doctors T. K. Laird, Montgomery; H. H. Ritter, Montgomery; C. L. Stinson, Glen Ferris; Guy Daugherty, Fayetteville, and K. H. Trippett, Scarbro, were admitted as new members of the Fayette County Society, while Dr. Norman Friedman became a member by transfer from McDowell County, and Dr. Thomas Bryant Pope by transfer from Mercer County.

G. A. DANIEL, *Secretary.*

GREENBRIER VALLEY

Dr. Harry G. Steele, Bluefield, featured the scientific program at the February 16 meeting of the Greenbrier Valley Medical Society, held in the Community House at Lewisburg. Dr. Steele presented a paper on "Prenatal Care—Pictures on Position of Placenta in Utero."

A legislative committee, consisting of Doctors A. G. Lanham, H. L. Goodman and H. D. Gunning was appointed, and the society voted to support Dr. H. L. Goodman, Ronceverte, as a candidate for councillor from the sixth district.

R. E. BAER, *Secretary.*

HARRISON COUNTY

Dr. W. F. Zinn, of Baltimore, was the essayist at the monthly meeting of the Harrison County Medical Society, held February 2, in the Stonewall Jackson Hotel, Clarksburg. Dr. Zinn read a paper on the subject, "Endoscopy—Its Relation to Every Day Practice", and supplemented his treatment of the subject with illustrative slides.

M. E. FARRELL, *Secretary.*

KANAWHA COUNTY

The regular March meeting of the Kanawha Medical Society was held at the Daniel Boone Hotel, Charleston, on March 14, with Dr. T. G. Reed, president, presiding. The guest speaker of the evening was Dr. I. A. Bigger, Professor of Surgery of the Medical College of Virginia, Richmond, who discussed, "Infections of the Hand and Forearm; Etiology and Treatment." This interesting presentation was illustrated with lantern slides. Discussion was opened by Dr. John E. Cannaday and Dr. Hugh A. Bailey.

Dr. Hugo Roesler, Cardiologist of the Department of Medicine, Temple University, Philadelphia, will be the guest speaker at the April 11 meeting of the society. Dr. Roesler will present a clinical demonstration at the Daniel Boone Hotel during the afternoon on "Nonmechanical Diagnosis of Heart Lesions", beginning at two o'clock. At the regular society meeting that evening at 8:15 o'clock, he will make an address on "Common Errors in the Diagnosis of Heart Lesions."

A. S. BRADY, JR., *Secretary*.

LOGAN COUNTY

Dr. W. M. Sheppe of Wheeling, chairman of the Syphilis Committee of the State Association, was the guest speaker at the March 15 meeting of the Logan County Medical Society and gave a very interesting talk on "The Diagnosis and Treatment of Syphilis." A good discussion followed.

During the business session, Dr. E. V. Jones of Logan was elected as a new member of the society and Dr. J. O. Hill, Huntington, and Dr. C. A. Martin, Amherstdale, were elected to honorary membership. The society also adopted a resolution on the death of Dr. T. J. Farley.

J. W. CARNEY, *Secretary*.

MARSHALL COUNTY

Dr. H. S. Parker of McMechen was elected president of the Marshall County Medical Society at the regular meeting in the Elks' Club, Moundsville, on the afternoon of March 14. He succeeds Dr. L. H. McCuskey who has served during the past year.

Dr. J. A. Striebich was reelected secretary-treasurer and Dr. W. C. Boggs, Cameron, and Dr. J. C. Peck, Moundsville, were elected delegates to the White Sulphur Springs meeting in July.

J. A. STRIEBICH, *Secretary*.

MARION COUNTY

"Hip Fractures Treated by Internal Fixation," was the subject of a paper read by Dr. J. O. Rankin of the Wheeling Clinic, Wheeling, at the January 31 meeting of the Marion County Medical Society in the Fairmont Hotel, Fairmont.

Publicity of the Marion County Dental Society was approved by the Marion County Medical Society, and the cooperation of the medical society with the dental group in its publicity program was pledged.

The American Board of Opthalmology has certified Dr. Joseph S. Maxwell, a member of the Marion County Medical Society, following his examination by that board.

JOHN P. HELMICK, *Secretary*.

MERCER COUNTY

Meeting in the directors' room of the Municipal Building at Bluefield, February 23, the Mercer County Medical Society heard Dr. R. O. Rogers, Bluefield, present a paper on "An Analysis of 214 Cases Receiving Blood Transfusions During the Past Two Years," and a paper on the subject, "Sulfanilamide in the Treatment of Pneumonia and Meningitis," by Dr. J. R. Shanklin, Bluefield. Doctors Marshall Sinclair, O. G. King and C. H. Goodykoontz, Jr., discussed these papers.

Dr. Harry G. Steele, Bluefield, added to the scientific program by showing a series of slides demonstrating a method of determining the location of the placenta in utero.

The Mercer County Society received Dr. Adam McClintic Byrd as a member by transfer from McDowell County.

The Mercer County Medical Society met in the Municipal Building, Bluefield, on the evening of March 16. Dr. Frank M. Huff was elected to membership in the society. The society endorsed a movement for the establishment of a birth control clinic in Bluefield, providing it be in charge of a licensed physician and its activity confined to the methods approved by the National Birth Control League of America.

The program consisted of a round table discussion of sulfanilamide, led by Dr. Frank J. Holroyd of Princeton, who discussed the history of its development, the various preparations, its action, absorption, diffusion, excretion and toxicity. Dr. R. R. Stuart, Bluefield, discussed its indications, contraindications and results. Dr. Ben W. Bird, Jr., Princeton, discussed its use in the eye, ear, nose and throat cases, and results obtained.

Dr. C. T. St. Clair gave a report of its use in otitis media. In 83 such cases, all having myringotomies, only two developed mastoiditis. Dr. John McGuire, Bluefield, discussed the use of sulfanilamide in streptococcic throat infections and Dr. Huff gave a resume of its use in genitourinary infections. Dr. James Shanklin, Bluefield, reported the use of sulfapyradine in the treatment of 12 cases of pneumonia. The temperatures of all patients subsided in 48 to 62 hours and the only toxic effect noted was nausea and vomiting.

Dr. King closed the discussion and reported the use of sulfanilamide in five cases of meningitis, four of which were meningococcic and one pneumococcic Type I with blood stream infection. Two of the cases of meningococcic meningitis were treated by the combined method (anti-meningococcic serum and sulfanilamide) and the other two received sulfanilamide alone.

O. G. KING, *Secretary.*

MINGO COUNTY

A special meeting of the Mingo County Medical Society was held at the Williamson Memorial Hospital on the evening of March 2 with Dr. W. H. Price, president, presiding. There were 19 members in attendance. The reason for the meeting was explained by the secretary, to consider the advisibility of presenting charges before the Public Health Council of West Virginia against Dr. S. M. E. Simon of Williamson, and requesting that his license to practice medicine in this state be revoked.

Mr. George H. Crawford, Williamson, society attorney, was asked by the president to take up the charges one by one in order that the society members might judge whether they considered such charges of sufficient gravity to warrant the society bringing the matter to the attention of the Public Health Council.

A general round table discussion followed presentation of the charges by Mr. Crawford, who answered all questions relative to the legal phases of the case. Mr. Crawford then retired and on motion, duly seconded, the society voted unanimously to present the charges to the Public Health Council.

Dr. Rush Farley invited the society to attend a banquet at the Mountain View Inn on the second Wednesday in March as his guests.

Petitions for membership were presented from Dr. S. M. E. Simon, Williamson; Dr. L. R. Leeson, War Eagle, and Dr. A. J. Holton, Glen Alum. These applications were presented to the Board of Censors with instructions to report at the next regular meeting of the society.

GEORGE W. EASLEY, *Secretary.*

MONONGALIA COUNTY

The regular monthly meeting of the Monongalia County Medical Society, held March 7, 1939 in the Marine Room of Hotel Morgan, Morgantown, was featured by a lecture on "Pneumonia", by Dr. F. R. Whittlesey, Morgantown.

CARL E. JOHNSON, *Secretary.*

OHIO COUNTY

Dr. Temple Fay, Professor of Neurosurgery, Temple University, Philadelphia, was the guest speaker at the March 10 meeting of the Ohio County Medical Society. His subject was "Neurological Aids in the Diagnosis of General Medical and Surgical Conditions." Discussion of this interesting address was opened by Dr. E. F. Glass, Dr. R. B. Bailey and Dr. A. L. Osterman.

Dr. Leon Herman, Professor of Urology of the University of Pennsylvania Graduate School of Medicine, Philadelphia, was the guest speaker at the March 24 meeting of the Ohio County Medical Society, held in the Solarium of the Ohio Valley General Hospital. Dr. Herman discussed "Urinary Infections in the Pregnant Woman." Discussion was opened by Dr. C. S. Bickel and Dr. R. D. Gill.

R. W. LUKENS, *Secretary.*

PARKERSBURG ACADEMY

The regular meeting of the Academy of Medicine of Parkersburg was held at the St. Joseph's Hospital, Parkersburg, on the evening of March 1 with Dr. W. R. Goff, president, presiding. The session was devoted exclusively to business matters.

Dr. R. H. Boice, chairman of the Committee on the Parkersburg Medical and Dental Business Bureau, reported for the committee, which was accepted.

The president, Dr. Goff, reported on the status of the hospital service plan in Parkersburg, noting that it is now apparently on a sound business basis, with the manager getting six per cent of the gross income. Dr. Harris asked for the cooperation of the doctors. There was much discussion as to whether x-ray and laboratory work should be excluded in services rendered to in patients and out patients.

Dr. Goebel reported the meeting of the Immunization Committee. Free toxoid for two or three physicians was not accepted as sound practice. It was suggested that adequate publicity be given to the fact that immunization for smallpox and diphtheria was required by law. It was recommended that physicians immunize private patients and that the health department immunize only the indigent cases if they have a certificate from a physician. This report was approved and accepted.

Dr. Goff briefly discussed the Wagner Bill introduced in the National Congress on February 27.

A. C. WOOFTER, *Secretary*.

RALEIGH COUNTY

The regular monthly meeting of the Raleigh County Medical Society was held at the Black Knight Country Club, Beckley, on the evening of March 16. The guest speaker was Dr. James Edwin Wood, Jr., Professor of Medicine at the University of Virginia School of Medicine, Charlottesville, who gave a most interesting presentation on "Recent Advances in the Study of Hypertension, and Their Influence on Therapy."

E. N. DUPUY, *Secretary*.

RECTAL AREA CANCERS MAY BE SECONDARY

All malignant growths of the rectal area should be minutely examined to ascertain whether they are secondary or primary cancers, inasmuch as such conditions may have their origin in other parts of the body, Harry E. Bacos, M. D., Philadelphia, advises in *The Journal of the American Medical Association* for March 4.

Reporting seventeen cases of cancer of the breast or of organs in the abdominal cavity in which the first symptoms were those caused by malignant growths of the rectal area, Dr. Bacon points out that: "whereas in this series the disease was advanced, it must be realized that such secondary invasion may occur early and be the only extension. The condition is of importance in that it is not extremely rare, the symptoms may not direct attention to the primary growth and the extrarectal process may be incorrectly diagnosed. As a routine procedure careful palpation and visualization of the rectum in every case of suspected malignant growth are advocated."

Obituaries

DOCTOR T. J. FARLEY

Dr. Thomas J. Farley, 55 year old Logan county physician, died at a Logan hospital on February 18, 1939, following an operation for a ruptured appendix. He was located at Amherstdale at the time of his death and previously practiced in Logan, Lorado and New Orleans, Louisiana. He was a member of the Logan County Medical Society and the West Virginia State Medical Association.

Dr. Farley was born at Burch, West Virginia, on November 21, 1884, and received his early education at Delbarton and at Concord Normal School. Later he attended the University of Louisville School of Medicine, graduating in 1914. He interned at the Braddock General Hospital, Braddock, Pennsylvania, and took postgraduate work at the Cook County Hospital in Chicago before starting in general practice.

The deceased was widely known throughout the Logan territory and served at one time as county health officer for Logan county. He was a thirty-second degree Mason.

DOCTOR F. S. HOLSBERRY

Dr. French S. Holsberry, well known Tucker county physician, died at his home in Parsons on December 3, 1938, at the age of 67 years. He was born at Meadowville, Barbour county, on January 31, 1872. Graduating from Fairmont Normal School, he taught school for several years and then matriculated at the Medical College of the South, Sewanee, Tennessee, graduating in 1899. He was licensed in 1900 and located at Parsons after practicing a few years at Kerens, West Virginia.

Dr. Holsberry was an active member of the Barbour-Randolph-Tucker County Medical Society and the West Virginia State Medical Association.

DOCTOR P. D. BARLOW

Dr. Page Dameron Barlow, 66 year old prominent McMechen physician, died at the Glendale Hospital on February 23, 1939, following an illness of three months' duration. He had been practicing in Marshall county for 37 years and was a past president of the Marshall County Medical Society.

Dr. Barlow was born in Pocahontas county at Edray on February 1, 1873. He received his medical education from the Medical College of Virginia, Richmond, and Baltimore Medical College, graduating from the latter institution in 1895. He interned at the Baltimore General Hospital and the Baltimore Lying-In Hospital. Later he practiced in Upshur county and in Martinsburg before locating in McMechen in 1902.

In addition to his extensive medical practice, Dr. Barlow was a successful breeder of fine Ayrshire cattle, a hobby in which he excelled and converted into a paying business. He was the owner of the Barlow stock farm near St. Clairsville, Ohio.

Dr. Barlow is survived by his wife, Mrs. Grace Miller Barlow, one son, one daughter, and two grandchildren.

DOCTOR J. H. McCULLOCH

Dr. John Howard McCulloch of Beckley, one of the state's best known industrial surgeons and prominent coal operator, died on March 18, 1939, of a fractured skull suffered in a fall down a flight of stairs. He was 53 years of age.

Dr. McCulloch was born at Point Pleasant, West Virginia, in 1885, and received his medical education at the University College of Medicine in Richmond, graduating in 1908. For a time he served as Chief Medical Examiner for the West Virginia Workmen's Compensation Department, and then located in Beckley in 1922. He was associated there with Dr. A. U. Tieche, his brother-in-law, in the operation of the Beckley Hospital.

In addition to his profession, Dr. McCulloch was president and general manager of the Lillybrook Coal Company, vice president of the Raleigh Smokeless Coal Company and a director in the Bank of Raleigh. He was a member of the West Virginia State Medical Association through the Raleigh County Medical Society, and a Fellow of the American College of Surgeons.

Funeral services were conducted in Beckley on March 21 and interment was made in the Sunset Memorial cemetery there. He is survived by his widow, one son and one daughter.

DOCTOR AMOS H. STEVENS

Dr. Amos Henry Stevens, prominent Fairmont internist and for many years secretary of the Marion County Medical Society, died suddenly at his home on March 11, 1939, following a heart attack. He was 40 years of age and had practiced in Fairmont for the past 10 years.

Dr. Stevens was born in Portland, Maine, on July 23, 1899. Following his preliminary education, he received his medical degree from Harvard Medical School in 1926. After three years of special work, he located in Fairmont in 1929. He was a Fellow of the American College of Physicians, a Fellow of the American Board of Internal Medicine, and a 1927 Diplomate of the National Board of Medical Examiners. His practice was limited to internal medicine.

Funeral services were held from the family residence in Fairmont on March 14. Interment was made in the family burial ground, Arlington, Massachusetts. Dr. Stevens is survived by his wife, Julia Stevens, who recently served as president of the State Woman's Auxiliary, and three sons.

DOCTOR C. A. MARTIN

Dr. Charles Alexander Martin of Amherstdale, Logan county, died after an illness of one year on March 25, 1939. His death was attributed to hypertensive heart disease with myocardial insufficiency. He was 60 years of age and was recently elected an honorary member of the Logan County Medical Society.

Dr. Martin received his medical degree from the University of Louisville School of Medicine in 1908 and was licensed in West Virginia the same year. After serving for a time at Harvey in Fayette county, he moved to Logan and was connected with the Amherst Coal Company at the time of his death. He was a thirty-second degree Mason and a Fellow of the American Medical Association. He was a member of the Logan Society for 30 years and was well known throughout the southern coal fields as an outstanding practitioner of medicine.

COUNCIL ON MEDICAL EDUCATION

Dr. W. S. Leathers and Dr. Herman Weiskotten have been added by the Board of Trustees to the Advisory Committee to the Council on Medical Education and Hospitals of the American Medical Association, the Association's *Journal* for March 25 reports. The committee now consists of Drs. S. S. Goldwater, Paul Titus, M. T. MacEachern, W. P. Wherry, J. R. Neal, Donald C. Balfour, C. B. Pinkham, Father Alphonse Schwitalla, Weiskotten and Leathers.

Woman's Auxiliary

FAYETTE COUNTY

The Woman's Auxiliary to the Fayette County Medical Society met at the Hotel Hill, Oak Hill, on Thursday, February 16. Mrs. Ralph Hogshead, president, presided and there were ten members present. Mrs. C. G. Merriam spoke on "The Horse and Buggy Doctor" and Mrs. George Fordham gave a review of "Little Man What Now." The next meeting of the group will be March 16 at Montgomery.

The Woman's Auxiliary to the Fayette County Medical Society met on March 16 at Hotel Conley, Gauley Bridge, West Virginia. Mrs. Ralph Hogshead presided and there were twelve members present. Mrs. Fordham, Mrs. Troutman and Mrs. Stallard presented the program. A joint meeting with the doctors of Fayette County is being considered for May. Next year's Auxiliary officers were presented.

The next meeting of the Fayette County Auxiliary will be at Montgomery.

MRS. W. B. DAVIS, *Secretary*.

KANAWHA COUNTY

The Auxiliary to the Kanawha County Medical Society met at the home of Mrs. Philip Preiser on Jackson Street, February 14, at eight o'clock. Mrs. Archer A. Wilson presided and twenty-four members were present. The evening was employed in bridge. It was reported that Kanawha County's Auxiliary had 100 per cent membership subscription to the *Hygeia* magazine.

A luncheon meeting on March 14 at the Woman's Club was planned.

The Woman's Auxiliary to the Kanawha County Medical Society met on March 14 for a luncheon at the Charleston Woman's Club. Mrs. Archer A. Wilson, president, presided. Thirty-five members were present. Mrs. B. S. Preston had charge of a program on the "Anniversary of Doctor's Day." Mesdames V. L. Peterson, Paul Revercomb, and M. I. Mendeloff read papers on the lives of famous doctors of the early centuries.

April 11 is the date of the next meeting and the place will be announced later.

MRS. WM. C. POLSUE, *Secretary*.

LOGAN COUNTY

The Woman's Auxiliary to the Logan County Medical Society held their February meeting on the seventh at the home of Mrs. J. Lester Patterson at Holden. Mrs. D. S. Hess, president, presided. There were seven members present. Dr. J. L. Patterson spoke to the assembly on "Problems of Socialized Medicine."

Their March meeting was held on the seventh day of the month at the Logan Woman's Club Rooms, and a covered dish luncheon was the occasion of the meeting. Mrs. D. S. Hess presided and twenty members attended. Mrs. E. H. Starcher gave a book review of "The Horse and Buggy Doctor." Plans were discussed and made for the coming Doctors' Day Dinner which will be held March 30 at the Logan Woman's Club.

MRS. J. L. PATTERSON, *Secretary*.

McDOWELL COUNTY

The Woman's Auxiliary to the McDowell County Medical Society met at Welch on February 8, 1939. Mrs. Paul C. Spangler presided. Thirty members were present to hear Dr. F. E. LaPrade speak on syphilis. The next meeting of the group will be March 8, 1939 at Welch, at which meeting "Doctors' Day" will be observed with a dinner and suitable program.

MRS. ARNOLD WILSON, *Secretary*.

PARKERSBURG ACADEMY

The Woman's Auxiliary to the Parkersburg Academy of Medicine met at the Chancellor Hotel, Parkersburg, on February 14, 1939. Mrs. B. S. Parks presided and there were twenty-three members present to hear Doctor Thomas Blake of the State Health Department, Charleston, speak on the Public Health Laws in West Virginia. Plans were made for the "Doctors' Day Dinner."

The Woman's Auxiliary to the Parkersburg Academy of Medicine met at the Chancellor Hotel, Parkersburg, on March 14, 1939. Mrs. R. D. Lattimer presided at the meeting and twenty-two members were present. There was a panel discussion led by Mrs. S. M. Prunty and joined by Mrs. O. D. Barber, Mrs. R. H. Wharton and Mrs. H. A. Giltner. The doctor's day dinner was planned for Thursday, March 30.

The next meeting will be the second Tuesday in April.

MRS. A. M. JONES, *Secretary*.

RALEIGH COUNTY

The Woman's Auxiliary to the Raleigh County Medical Society met on January 23 at the Woman's Club, Beckley. This meeting was open to the public and was presided over by Mrs. Ross P. Daniel. Dr. J. J. Brandabur of Huntington, spoke on "Periodic Physical Examinations."

On February 28, the Woman's Auxiliary to the Raleigh County Medical Society had a luncheon meeting at the Beckley Hotel. There were twenty-six members present and Mrs. Ross P. Daniel presided. Mr. Joe W. Savage was guest speaker and his talk concerned recent trends in medical economics. Drs. L. M. Halloran and Newton DuPuy, president and secretary of the Raleigh County Medical Society were also guests of the Auxiliary. Matters of business discussed at the meeting included the appointment of a committee to confer with the Raleigh County Medical Society concerning cooperation of the Auxiliary with the American Red Cross in forming classes in home hygiene and care of the sick.

Mrs. Ross P. Daniel, president, appointed Mrs. W. C. Mays, Mrs. Ira Fisher, Mrs. S. A. Ford, Mrs. B. B. Richmond and Mrs. E. S. DuPuy as members of this committee.

Public Health

The material in this monthly column is compiled and furnished by the West Virginia State Health Department

DIPHTHERIA IMMUNIZATION

It has been demonstrated that the proper age groups are not being immunized against diphtheria in West Virginia. Of all the cases reported as being immunized against diphtheria by West Virginia health services in 1937—74.5 per cent were over five years of age. Of all the deaths reported in West Virginia due to diphtheria in 1937, 73.0 per cent were under five years of age. If 75.0 per cent of all infants were immunized against diphtheria before their first birthday, we would have an entirely different picture.

"Greetings to Baby" is now being sent out by the State Department of Vital Statistics with the birth certificates. These will be received by the parents when their infant is three or four months old. A copy of this "greeting" has been sent to all practicing physicians. This greeting urges immunization against diphtheria by the family physician as soon as possible after six months of age. Where

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there are cases to be immunized that cannot afford to have this work done, local health services will cooperate in immunizing all cases referred to them.

PRESCHOOL CHILD HEALTH CONFERENCES

Based on the yearly average for the five year period 1932-1936, 18,203 deaths occur in West Virginia each year. During the first year of life 2,685 deaths occur; and 1,018 deaths occur between the ages of one and five years. This means that a little over one-fifth or 20.4 per cent occur before six years of age. It is further observed that between the ages of 6 and 19 years only 5.5 per cent of all deaths occur.

While these figures represent the fatalities in the younger age groups, the proportion of illnesses and disabilities is bound to be in proportion to the deaths. Can anything be more conclusive than these figures in urging more endeavor relative to the improvement of the health of the preschool child.

The Division of Maternal and Child Hygiene of the State Health Department will cooperate in organizing preschool child health conferences for May and June, 1939. Local civic groups such as parent-teacher associations, women's clubs and other interested groups will aid in this program. Local health departments will do their share in making these conferences a success. It is not the policy of the department to have local health officers make these examinations, but they are to act in an administrative capacity only.

It is hoped that local physicians and dentists will participate in the conferences and make these examinations. For their services the State Health Department will allow an honorarium. Funds are to be allocated on a county-wide basis to each county to be used in the payment of physicians and dentists. Physicians should be sure that the organization requesting their services has entered into an agreement with the State Health Department for the

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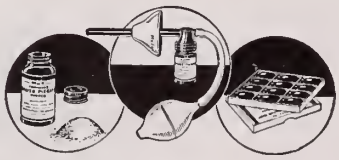

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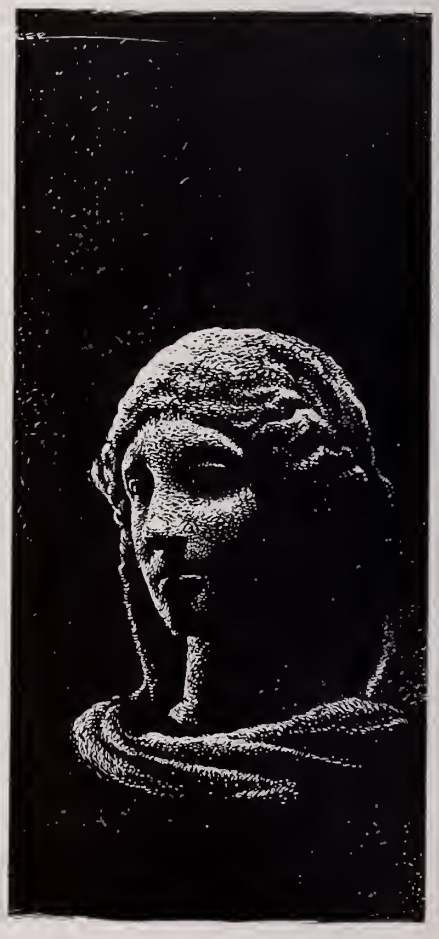

payment of fees. We cannot be responsible for any fees unless an agreement has been entered into between the organization conducting the preschool conferences and the State Health Department.

It is realized that a yearly endeavor such as a preschool health conference has many limitations. The principal objective is not only to educate the public on the importance of child health measures but at the same time find remedial defects that can be corrected before the child enters school. Parents are urged to attend the conference with their children. This familiarizes the parents with the importance of a periodic health examination by physicians. All children found with any abnormal conditions are referred to their family physician.

In 1938 there were 421 conferences held with a total attendance of 16,784. There were 11,481 of this number found defective. There were 291 general practitioners, 17 pediatricians and 81 dentists who assisted in examining children. A total of $4,174.50 was paid to the physicians and dentists for their participation in the conferences. Of this amount, general practitioners received $3,159.50; pediatricians received $1,015, and dentists received $711. Many physicians gave their services at these conferences and for this we are deeply indebted.

Physicians, dentists, nurses and other health workers and health organizations play a major rôle in protecting the health of our children. No group plays a more important rôle in this health protection than our practicing physicians. It is only by having as many children as possible under the direction of physicians that we can accomplish most in this endeavor. The physician is in the best possible position to recognize early the beginning of defects and disease through periodic health examinations of this younger group of citizens. We all hope that these conferences will aid in educating the parents to take their children regularly to their family physicians.

CHILD HEALTH DAY

Child Health Day, sponsored by the Children's Bureau of the United States Department of Labor, will be observed throughout the United States, and in West Virginia the observance will be under the direction of the State Department of Health. This event, annually observed on May Day—May 1—emphasizes the slogan: "The health of the child is the power of the Nation," and its object is to bring to the attention of each community the importance to the child's health, development and well-being

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throughout life, of proper food, rest, exercise, medical care and protection against disease.

The State Department of Health, through community and school programs, plans to emphasize the ways of informing parents and others how child health may be safeguarded, and the means whereby such safeguards may be made available for all children.

COMMUNICATION

WHITE SULPHUR SPRINGS

We are to welcome the West Virginia State Medical Association at White Sulphur next July and we trust that members will stay long enough to learn more about this famous spa which dates back to Revolutionary times and for years has appealed to both North and South as a spa of the first magnitude. A brief description may be in order:

The Greenbrier is not a sanitarium but a hotel with many of the features of a sanitarium or hospital. This includes the services of two physicians, numerous bathers, masseurs, a nationally registered laboratory and x-ray technician, registered nurses, etc. We have an x-ray department and, of course, other accessories such as short wave diathermy, infrared lamps, ultraviolet lamps, etc. We make basal metabolic tests, blood counts, blood chemistry, including blood sedimentation test and, of course, the laboratory tests for urine and bacteriological tests of the water, milk and cream. The latter are reported twice a week.

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Guy Hinsdale, M. D.,
George M. Caldwell, M. D.

COURTHOUSE DOCTORS

An editorial in *America's Future*, November, 1938, says of socialized medicine: Shall we turn medicine over to politics? Shall we make doctors and surgeons into politicians, or men dependent on politicians? Shall we degrade a great profession and the service it renders? These are some of the questions which the drive for socialized medicine is bringing to the fore. No doubt the profession of medicine is like most other professions in need of improvement. But is improvement to be found in control of medicine by the state?

American doctors seem to have done a really fine job. They have diminished the general death rate very rapidly as well as the special death rates for such common and heretofore deadly diseases as diphtheria, scarlet fever, smallpox, typhoid and tuberculosis. In fact, they lead the world in control of such diseases. In the last fifty years the expectancy of life has more than doubled in the U. S.

On the other hand, in countries where social

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medicine has been provided by a state, progress has been slower.

A fair conclusion seems to be that the reform required in medicine will be achieved more effectively and cheaply, and with far better results measured in human welfare, by keeping medicine out of the hands of politicians.

One might rather bluntly sum up the question by asking—do the people want to pay from half a billion to a billion more taxes each year in order to have their doctors chosen and their medical services controlled by the kind of men that hang around the court house?—*Illinois Medical Journal.*

DOCTOR AND PATIENT

The doctors themselves, through their organizations, have suggested an answer to the medical problem:

First: Let the State continue and even extend its public health work to educate and guard people in the field of preventive medicine.

Second: Arrange for that part of the population which is clearly unable to pay doctors' and dentists' fees to be taken care of by local authorities or possibly by representment, never by distant Federal authorities. Under this plan the doctor would not have to do too much charity work nor overcharge his paying patients.

Third: Leave the rest of us alone to run our own lives, choose our own physician and pay him a reasonable fee. Then we can continue to stand on our own feet, keep our self-respect, and maintain the splendid and helpful relationships that have existed in the past between the doctor and his patient.—*American Agriculturist.*

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TUBERCULOSIS ABSTRACTS

(Continued from page 187)

b. Dense and confluent lesions which may extend through not more than the equivalent of one-third the volume of one lung.

c. Any gradation within the above limits.

d. Total diameter of cavities, if present, estimated not to exceed four cm.

Far Advanced: Lesions more extensive than moderately advanced.

SYMPTOMS

Slight: Constitutional and functional symptoms, such as loss of weight, ease of fatigue, and anorexia are slight and not rapidly progressive. Temperature not more than one-half degree above normal at any time during the twenty-four hours. Slight or moderate tachycardia. Cough, if any, is not hard or continuous; sputum, if any, may amount to one ounce or less in twenty-four hours.

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STAGE OF DISEASE INFLUENCES PROGNOSIS

Hilleboe succeeded in tracing 92.7 per cent of more than 5,000 patients discharged from 10 of the 15 public tuberculosis sanatoria in Minnesota during the ten-year period 1926-1935. Patients studied were about equally divided between rural and urban residents. Of the total number about 36 per cent were dead on discharge. This tremendous loss gives some measure of the tragic toll taken by this disease even during hospitalization when expert medical attention and every facility for treatment are available. Living and dead are classified, according to stage of disease, as shown approximately in Chart I.

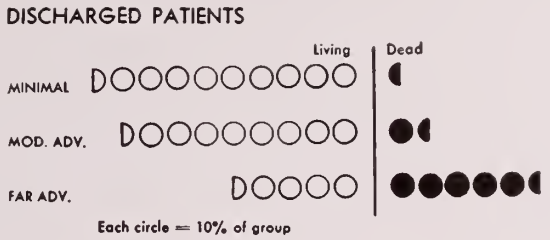

CHART I

Stage of disease influences the length of time needed for recovery. In this study all patients were in the sanatorium for 90 days or more. Living patients, not including those who were admitted more than once were classified according to the average length of stay in the sanatorium and the stage of the disease. Chart II pictures roughly the result.

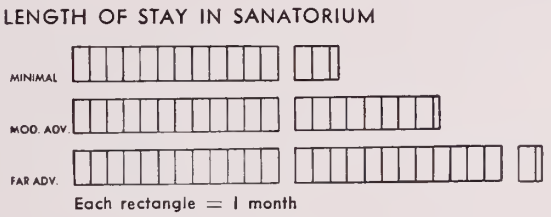

CHART II

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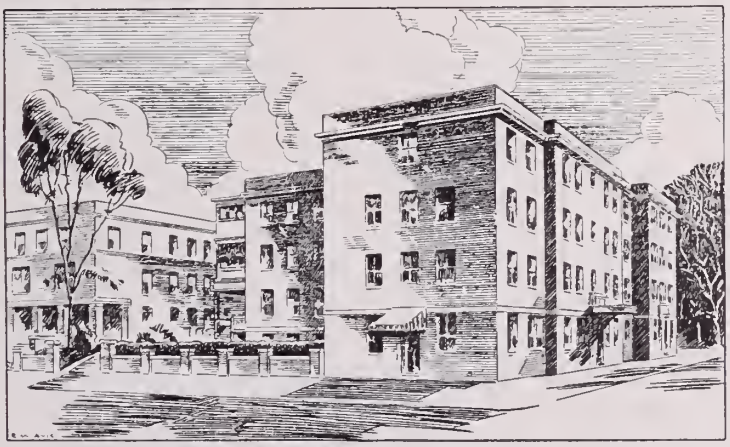

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The influence of stage of disease on the condition at the time of discharge was studied and the results confirmed the observation that the early case has a much better chance of satisfactory recovery than the advanced case. The result is summarized in Chart III.

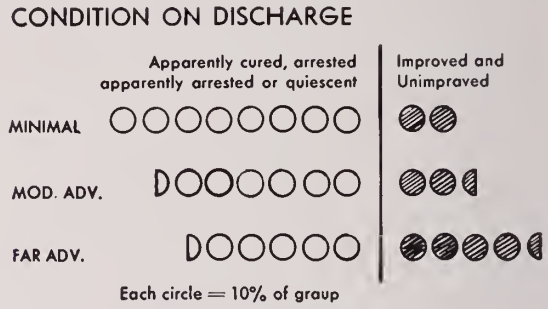

CHART III

The probabilities of dying from any given disease can be calculated by actuaries with a fair degree of accuracy. In a person with tuberculosis the risk of dying is increased and this risk is in direct ratio to the stage of disease as shown in Chart IV.

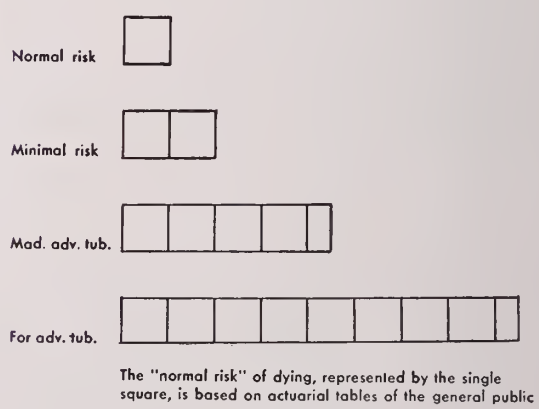

CHART IV

"Statistical study of comparative mortality in discharged patients gives valid proof of the soundness of many clinical concepts regarding the disease. After all, one of the real values of statistics is to confirm the impressions of sound clinicians. Beneficial effects of early diagnosis of serious pulmonary tuberculosis lesions are reflected in the smaller risk of dying on the part of the minimal cases in comparison with the more advanced cases during the dangerous first five years after discharge. Tuberculosis must be diagnosed early."

Follow-up Study of Patients Discharged From Tuberculosis Sanatoria. H. E. Hilleboe, M.D., Transactions of the Thirty-fourth Annual Meeting of the National Tuberculosis Association, 1938.

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MODERN SURGICAL TREATMENT OF CANCER OF THE RECTUM AND RECTOSIGMOID*

By FRED W. RANKIN, M. D.
Lexington, Kentucky

Cancer of the rectum next to cancer of the stomach, is the most frequently occurring gastrointestinal malignancy. Approximately two out of three growths in the lower gastrointestinal tract occur in the rectum or rectosigmoid, and lower portion of the sigmoid colon. Men are affected more commonly than women, in the ratio of about three to two. The accessibility of the lesion, its rather constant tendency to be of low grade, and consequently to remain local a considerable length of time, and its amenability to extirpative measures all influence a satisfactory prognosis. Indeed, under average conditions there is small question that cancer of the lower part of the gastrointestinal tract may be diagnosed earlier and removed radically with a prognosis better than cancer of the stomach and small bowel. The relationship of polyps to bowel malignancy, the interest of groups of surgeons, clinicians, and pathologists working together throughout the country, and particularly the forward-looking steps instituted by proctologists and radiographers, have within the last quarter of a century changed the entire diagnostic and operative treatment of large bowel and rectal malignancies.

THE AUTHOR

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DIAGNOSIS

The diagnosis of cancer of the rectum is comparatively simple, and depends only upon an adequate examination. So accessible is a rectal cancer that from the standpoint of diagnosis it might well be put in a classification with external cancers of the breast, lip, and other easily viewed lesions of the surface of the body. Any rectal cancer may be felt by a digital examination, with the exception of a small group which are high in the rectosigmoid. Every rectal and rectosigmoidal cancer may be diagnosed by a simple proctoscopic examination. That a large group of

*Read before the Association of Surgeons of the Chesapeake and Ohio Railway, White Sulphur Springs, West Virginia, November 11, 1938.

these cancers are not given the benefit of a digital or proctoscopic examination but continue to be treated by salves, ointments, and other local applications without inspection and examination is adequately proven by the statistical data easily available from many sources which show somewhere between 15 and 40 per cent of all cancers of the rectum to have been operated upon for hemorrhoids within the period of their symptoms. In my series the percentage has been about twenty-eight.

There are no pathognomonic early symptoms of cancer of the rectum, but the three main reasons which impel people to seek medical advice relative to the rectum are, bleeding, irregularity of stool habit, and pain.

BLOOD IN THE STOOL

Usually blood on the stool or in the stool is the symptom which brings the individual to seek advice, for practically 90 per cent of rectal cancers at some time during their existence will produce blood. In my own series of cancers of the rectum and rectosigmoid, 84 per cent of the patients had had bleeding. Change of bowel habit characterized by alternating periods of constipation and diarrhea, persisting over a period of several weeks, indicates the necessity of a thorough examination of the lower bowel. This change in habit usually is associated with pain or blood in the stools and in a series of 539 cases which I once reported, 55 per cent showed constipation as the predominant symptom while in 20 per cent diarrhea was the most noticeable manifestation. The diarrhea varied from a mild irritability to the passage of eight to ten stools a day, and often was not alarming to the patient until dehydration or weakness from fluid loss was apparent. Rapid and excessive loss of weight or strength in cancer victims usually are worthless symptoms in the stages of the disease when its recognition would be favorable to prognosis. Such symptoms usually mean that metastasis to distant organs has begun.

Rectal cancers are usually rectosigmoidal growths. If one considers the rectosigmoid where the sigmoid flexure of the large bowel enters the top of the rectum at a slight angle in most cases, and a sharp angle in some, as an anatomical segment about two inches long, one inch intraperitoneal and above the reflection of the peritoneum in the bottom of the pelvis, and one inch extraperitoneal in the upper portion of the rectum, one will find that this location harbors two-thirds of all rectal cancers. Some years ago I examined 100 consecutive cases of rectal cancer on the operating table and found that 67 per cent of the growths were at the rectosigmoid juncture, two per cent were low in the anal canal, and 31 per cent were in the ampullary portion of the rectum.

If the cancer be located close to the rectal sphincter, tenesmus and pain and a feeling of inability to empty the rectum at stool will be the predominating symptoms. Stricture of the rectum occurs from cancer only at the rectosigmoid juncture and in the anal canal. The ribbon-like stools so glibly described by most authors as characteristic of rectal cancer, are not the result of stricture or the cancer itself, but are the result of spasm of the sphincter muscle secondary to irritation of the growth higher in the bowel. When one feels a single, punched-out ulcer or an adenomatous polypoid growth of the rectum, and views it with the proctoscope, there can be small question that the characteristic appearance will clinch the diagnosis. If there is question, it is a simple matter to do a biopsy with the proper instrument, touch the raw surface thus produced with a cautery, and have a confirmatory microscopic diagnosis made by frozen section.

USE OF X-RAY IN DIAGNOSIS

In so far as x-ray in the diagnosis of cancer of the rectum is concerned, may I not urge that it be employed for the detection of lesions higher in the large bowel? I do not believe if a patient presents himself, or herself, for examination with bright red blood in or on the stool, and other symptoms suggestive of malignancy low in the gastrointestinal tract, that a radiologic examination

of the large bowel should ever be undertaken until a digital or proctoscopic examination has failed to locate a neoplasm in the lower rectum or rectosigmoid. In the first place, if the growth is in the rectum, frequently because of the anatomical structure and the rectum being in a bony cage, the skiagram will fail to detect it. Secondly, if the growth is in the rectum it is much more easily and efficiently identified by vision than by radiography, and thirdly, if the growth is above the rectosigmoid juncture in the lower sigmoid and is obstructing the entire lumen of the bowel, to pour into the sigmoid a barium mixture is to court the production of acute intestinal obstruction in the face of a grave chronic condition. In so far as the identification of lesions of the large bowel by the oral administration of barium goes, it must be admitted that not only does this fail of satisfaction, but in addition is a distinct menace in that there exists the likelihood of producing an acute intestinal obstruction. The location, then, and probable grading of malignancy in cancers of the rectum is easily and satisfactorily accomplished by a simple local examination, which although it is a platitude, must be emphasized as a necessary part of all routine complete examinations.

CHOICE OF OPERATIONS

Surgery, in the light of our present knowledge of the prognosis of cancer of the rectum, is unquestionably the procedure of choice. The use of radium, x-ray, fulguration, and other palliative measures, and in some instances complementary measures, for radical cure, have definite and specific indications. It is axiomatic that the choice of surgical procedure in any given case demands not only high individualization, but a flexibility in the selection of maneuver which emphasizes that the surgeon have in his armamentarium at least three or four operative procedures with which he is amply familiar.

The choice of operation in my hands lies within the following group of surgical procedures: (1) combined abdominoperineal resection in one stage after Miles' technique; (2) the colostomy and posterior resection (Mummery's operation); (3) radical combined abdominoperineal resection in two stages, (Rankin's operation); and (4), local destruction or excision with or without sacrifice of the sphincteric mechanism. For the last named procedure I have no enthusiasm and rarely, if ever, employ it. It must be admitted however, that in extremely old individuals with a low-lying growth, excision or destruction by cautery, fulguration, or radium will be indicated because of the patient's inability to withstand more formidable and extensive procedures. As for my own operation of radical two-stage procedure which is a modification of Miles' operation and which I introduced in 1928, I have abandoned it except in very few cases, finding that with increasing experience and more meticulous preoperative and postoperative care, I have been able to apply the one-stage radical procedure in practically the same group of cases as I employed my own operation.

MILES PROCEDURE

By and large, I believe that the one-stage Miles procedure in experienced hands will be applicable to three out of four operative cases and that for the other twenty-five per cent, the Mummery operation is the safest and most useful. It is a surgical platitude to say that no extensive procedure on the gastrointestinal tract should be undertaken without due care being given to preoperative preparation and rehabilitation. The marked success which follows the application of these fundamentals to surgery of the stomach, thyroid, genitourinary system, and elsewhere, is paralleled in the surgery of the large bowel and rectum, and the more experience I accumulate in this latter type of surgery, the more I am convinced that to extend, rather than contract the period of preliminary rehabilitation and decompression, is advantageous. Nowadays, I utilize a period of five to seven days accomplishing satisfactory decompression, and feel that it is a most essential move which has influenced favorably the operative outlook.

We are accustomed to hospitalize patients with malignancy of the large bowel and rectum, and although keeping them ambulatory and insisting on their not staying in bed, stress a diet high in calories, low in residue, plus the institution of adequate decompressive measures such as multiple bowel washings daily. During this same time, blood transfusions are instituted as they seem necessary and all efforts are made toward building up a reserve against the day of operation.

GLANDULAR INVOLVEMENT

In selecting the type of operation for any given case one must take into consideration, first, the location of the growth; second, known duration; third, ability of the patient to withstand formidable operations, and fourth, coexisting diseases. Recently some work done by Gilchrist and David, and reported before the American Surgical Association in May, 1938, as well as a follow-up piece of work done by Dukes and Bussey, has confused the thesis that glandular involvement is late in cancer of the rectum. By more adequate examination, and by this I mean the examination of more glands in each specimen, it has been noted that instead of a low percentage of involved glands being found, as high as 70 per cent of the cases show malignant extension. David and Gilchrist's series showed 70 per cent of involvement, while Gabriel, Dukes, and Bussey examining an average of 28 glands in each of 100 excised rectums at St. Mark's Hospital, found 62 per cent to be involved. These important reports unquestionably support the thesis of Miles that when it is at all feasible, one should excise not only the local growth, but the gland-bearing tissues in the different zones of spread, and particularly in the upward zone, namely, the mesentery of the sigmoid.

In my experience, I have gradually in the last ten years, gone through an evolutionary period beginning with the colostomy and posterior resection, up to the one-stage Miles operation as it is done in most clinics, and I am convinced that this latter operation will never be a routine procedure in the hands of general surgeons, much less occasional operators, but demands a high degree of team work possible only in the clinics of individuals handling a large group of rectal cancers. Nevertheless, with a careful selection of cases and with adequate teamwork in the operating room and in the postoperative management, the mortality figures will be kept well within reasonable bounds, and the prognosis materially enhanced.

OPERABILITY AND MORTALITY

Operability and mortality in rectal cancer are inevitably closely allied; a high operability rate usually means a high mortality rate. Radical surgical maneuvers which yield the most successful results may not be accomplished routinely by general surgeons unless adherence to fundamental factors is closely observed. The acceptance of widespread glandular dissection not only influences the choice of operative maneuver, but affects mortality and end results. The following tables which I published in the *Journal of the American Medical Association,* November, 1937, show the mortality and operability rates in a large group of personal cases, and further, the rates of mortality following different types of operation.

MORTALITY AND OPERABILITY

576 cases 412 resections	Operability	71.4%
576 cases 75 deaths	Mortality	13%
412 resections 49 deaths	Mortality	11.8%
164 explorations alone or with colostomy 26 deaths	Mortality	15.8%

MORTALITY FOR DIFFERENT OPERATIONS

	Cases	Deaths	Mortality
Combined abdominoperineal resection 1 stage	44	2	4.5%
Combined abdominoperineal resection 2 stages	89	8	8.9%
	133	10	7.5%
Colostomy and posterior resection	162	12	7.4%
Miscellaneous: anterior resection tube resection, Harrison-Cripps operation, local excision, etc.	117	27	23%

It will be seen that the mortality rate for the combined abdominoperineal operations in one or two stages (133 cases with 10 deaths) was 7.5 per cent as compared with 162 cases with 17 deaths, or 7.4 per cent for the less

radical operation of Mummery. The last figure is higher than customary for surgeons using colostomy and posterior resection to report, but this is explainable by the fact that with the higher operability curve the very worst risks were subjected to this type of maneuver. Obviously these statistics emphasize that no one type of operative procedure is applicable in all cases of cancer of the rectum, and furthermore show that when patients present themselves before metastasis and debilitating processes have reduced them to poor risks, a surgeon may extend the scope of his operative maneuvers to the more radical procedures and accomplish the combined abdominoperineal resection in one or two stages with a mortality and operability comparable to the operative procedures for cancer elsewhere in the gastrointestinal tract.

Since the above statistics were reported my series has been increased to 162 private cases operated upon for cancer of the rectum and rectosigmoid, of which group 88 were done by Miles' technique in one stage, six by my own type of two-stage operation, and 30 by Mummery's operation of colostomy and posterior resection. The Miles operations were done with six deaths, a mortality of 6.9 per cent. Resection was done on 125 of the 162 cases, a resectability figure of 77.1 per cent.

PROGNOSIS

It has been frequently said and there are ample statistical data to corroborate the statement that prognosis in cancer of the rectum is excellent because of the low grade of growth found in the average case. There is small question that the grading of the growth, whether one uses Broders' or Duke's method, is the best yardstick by which to measure prognosis. The extension of the growth and the rapidity of metastasis are in direct ratio to the activity of the cancer cell. The great majority of cancer cells will be found to fall in Grades I or II, but recent figures showing a higher percentage of glandular involvement than formerly indicate that a second factor in prognosis is the extent of the operative procedure.

With an operability of 75 per cent and a mortality rate of ten per cent or less, one would expect a high percentage of five-year cures. Actually, figures from the clinics of experienced surgeons throughout the world indicate that radical procedures applied in the ratio mentioned above and with the mortality curve stated, do give eminently satisfactory postoperative results. Abel, of London, reported a series of 164 combined abdominoperineal resections with 63.4 per cent alive and well five years later. Jones, of Cleveland recently reported 151 cases with 52 per cent alive and well at the end of five years. The colostomy and posterior resection, useful though it is in the higher risks, has in my hands given a smaller percentage of five-year cures. In June, of 1933, I reported 300 cases of posterior resection with 36 per cent alive and well after five years. Mummery, who uses this operation to the exclusion of more radical types, finds a five-year survival to number 52.2 per cent of the cases. These figures indicate not only the satisfactory prognosis from operations for cancer of the rectum, but I think conclusively demonstrate that the curability curve is raised by radical operations and at the same time emphasizes the fact that multiple operations are necessary in the surgical attack on cancer of the rectum.

CONCLUSIONS

1. Cancer of the rectum is easily accessible to proctoscopic and digital examination and the diagnosis should always be accomplished.

2. Blood, irregularity of bowel habit, and pain are the most important symptoms of cancer of the rectum in its early stages and should always call for a survey of the colon and rectum by proctoscopic and radiologic means. The importance of this statement is emphasized by the high percentage of rectal cancers still operated upon for hemorrhoids within the period of their symptomatology.

3. Biopsy from rectal tumors followed by immediate cauterization establishes a microscopic diagnosis before operation and is useful in gauging the prognosis. No deleterious effects follow such a procedure.

4. Surgery is indubitably the most useful present day method of combating cancer.

5. Multiple operations must be employed in order to keep a high operability percentage, which is just as essential as a low mortality curve.

6. Any radical operation for rectal cancer demands the acceptance of colostomy as one of the fundamental steps.

7. Combined abdominoperineal resection of the rectum in one or two stages is the procedure of choice, removing as it does, not only the growth, the gland-bearing tissues in its immediate vicinity, but also the mesentery of the sigmoid. Colostomy and posterior resection is also a useful procedure for the poorer risk cases.

8. Except in the face of acute obstruction, rectal cancers should never be operated upon without a preliminary preparatory period of decompression and rehabilitation.

9. Group management which includes the cooperation of internist, pathologist, and surgeon forwards greatly the handling of cases of lower gastrointestinal pathology.

10. Modern surgical procedures carried out with meticulous care after an adequately accomplished preliminary period may be done with a mortality ranging from six to ten per cent and with an operability curve from 66 to 76 per cent.

11. Rectal cancers are usually of low grade malignancy and consequently are of better prognosis than malignancy elsewhere in the gastrointestinal tract.

CARCINOMA OF THE LARYNX*

By LOUIS H. CLERF, M. D.**
Philadelphia, Pennsylvania

CANCER is rated as the second most common cause of death. With our present knowledge, success in reducing the death rate from cancer is limited almost entirely to early recognition and prompt and appropriate treatment. Interest in this subject is not limited to the medical profession. Every effort is being made to acquaint the lay public with the prevalence of cancer and the importance of diagnosis early in the disease. An enormous army of women have enlisted as the Women's Field Army for the Fight Against Cancer. They will endeavor to make the public cancer-conscious. This undoubtedly will bring to the physician more patients with early cancer. It also will increase his responsibility and it should become necessary that he keep informed concerning methods of early diagnosis and appropriate treatment.

THE AUTHOR

Dr. Louis Henry Clerf, Philadelphia; graduate of Jefferson Medical School; interned Jefferson Hospital and served as Chief Resident; postgraduate New York Eye and Ear Infirmary; Professor of Laryngology and Bronchoscopy, Jefferson Hospital; Past President, American Bronchoscopic Society; American Academy of Ophthalmology and Otolaryngology; American Association for Thoracic Surgery; American Laryngological Association.

We, as laryngologists, are particularly interested in cancer of the larynx. Collected reports indicate that laryngeal cancer constitutes about four per cent of all malignant tumors. Ninety-eight per cent of these are of the squamous cell variety. What should be our position in regard to the cancer problem? To answer this question certain data based on available knowledge must be considered. The cause of cancer of the larynx is not known. Certain predisposing factors are recognized,

*Read before the Eye, Ear, Nose and Throat Section of the West Virginia State Medical Association, White Sulphur Springs, July 11, 1938.

**From the Department of Laryngology and Bronchoscopy, Jefferson Hospital, Philadelphia, Pennsylvania.

but too often these are considered in retrospect. It is obvious that efforts to prevent cancer are fruitless and our endeavors must therefore be directed towards its early recognition and treatment. This would not be difficult for the following reasons, provided the patient consulted his physician as soon as symptoms developed.

1. Approximately 80 per cent of all cancers of the larynx begin on a vocal cord in its anterior one-half.

2. About 98 per cent of cordal cancers are of the squamous cell type, are of slow growth and do not metastasize early.

3. Hoarseness is an early symptom and is observed in every case of cord cancer.

4. The larynx of every patient can be examined either by mirror or direct laryngoscopy.

5. The histologic character of any vocal cord lesion can be accurately determined by biopsy.

6. More than 80 per cent of patients with early vocal cord cancer can be cured by appropriate surgical treatment.

Although these statements admit of discussion they are fundamental and must be considered in diagnosis and treatment.

DIAGNOSIS

It is essential that every physician examining an adult patient with laryngeal symptoms should be cancer-minded. He should be familiar with the various methods employed in the diagnosis of laryngeal disease.

Age and sex are of diagnostic importance in a general discussion of cancer. In the individual case, however, too much emphasis should not be placed upon them. In a series of 192 operated cases, 14 were under 40 years of age; five of these were in the twenties, the youngest being 21 years. Approximately 10 per cent of all cases were females.

Syphilis or tuberculosis of the larynx may occur coincidentally with cancer. Although the anatomic site of involvement is of interest, any diagnostic question should be settled by biopsy. This is particularly important in cases of suspected syphilis of the larynx. Prompt biopsy in every laryngeal case in spite of a positive Wassermann is a safe rule to follow. Too often these patients are given a prolonged course of antiluetic treatment to find later that the lesion is cancer and probably has become inoperable.

SYMPTOMS

Hoarseness of more than several weeks duration occurring in an adult patient warrants prompt investigation. Hoarseness is observed in every case of cord cancer. The voice disturbances usually are slight at the onset but are progressive. There often is an associated feeling of discomfort in the throat. Extrinsic forms of cancer, namely, cancer of the epiglottis, ventricular band, arytenoid and postcricoid region and cancer involving the subglottic tissues are unassociated with voice disturbance until a vocal cord is involved. In these there may be disturbances in swallowing, a sensation of a foreign substance in the throat or speech changes. Pain, often regarded as a common or important symptom never is observed in early vocal cord cancer. Its presence indicates advanced disease; it commonly occurs when cartilage is involved and often is referred to the ear.

LARYNGOSCOPY

No final opinion can be given in a case of hoarseness until the larynx, including the anterior ends of the vocal cords is examined. Proficiency in mirror or indirect laryngoscopy will overcome many of the difficulties commonly experienced by the beginner. An ample supply of laryngeal mirrors and adequate means for illumination of the larynx are necessary. The irritable pharynx may be anesthetized. The overhanging epiglottis can be retracted. In the occasional case it may be necessary to resort to direct laryngoscopy. Irrespective of the method employed, however, the anterior commissure should be visualized before a negative opinion is given.

BIOPSY

The objections to this procedure if properly performed are largely theoretical. Since the specimens of tissue secured are small it is imperative that the pathologist is familiar with

the identification and methods of handling the material submitted. His opinion is based, not on the entire larynx, but on the specimen of tissue submitted. The laryngologist therefore must secure representative material. The final diagnosis is his responsibility and he should correlate the clinical with the pathological findings. A laryngeal lesion which appears clinically as cancer should not be considered as benign on the basis of a negative pathologic report unless the biopsy material was representative. In case of doubt another biopsy should be made.

In connection with biopsy much important information may be furnished by the pathologist concerning the degree of malignancy of a tumor. While grading cannot always be accurately done, it is important to learn whether a tumor is well differentiated or anaplastic in type.

TREATMENT

Recent studies in irradiation therapy have very properly raised the question, should a patient with cancer of the larynx submit to surgical treatment or to irradiation. Evaluation of any plan of treatment for cancer should be based on five-year results. One or two year cures have no statistical value and may be misleading. The choice of treatment should be determined on the basis of the location of the lesion, the extent of its involvement and the degree of malignancy as determined by histologic grading. Recent reports by radiologists indicate that the best results in irradiation therapy are secured in the early vocal cord tumors before there is fixation. The available statistics of five-year cures however are few and the results do not appear as favorable as those secured in similar cases treated by surgical extirpation.

Surgical treatment consists of thyrofissure or laryngofissure and laryngectomy. Thyrofissure is suitable for cancer limited to the vocal cord and consists of removal of the growth together with an ample margin of surrounding normal tissue without sacrificing the larynx. These patients breathe through the normal airway, develop a satisfactory voice and are not seriously handicapped from an economic standpoint. Laryngectomy is suitable for advanced vocal cord cancer and certain of the extrinsic growths. With the larynx removed, breathing is carried on through the tracheal stoma or tube. Speech is produced with the aid of an artificial larynx or by swallowing air and developing a so-called esophageal voice. While these patients get on remarkably well, their economic status is not as secure as that of the more conservatively operated group.

The operative mortality of thyrofissure or laryngectomy should not exceed two or three per cent. The number of five-year cures of patients operated by thyrofissure is slightly more than 80 per cent. The recurrence rate following laryngectomy varies depending on the type of case considered. In the cases of intrinsic cancer there has been no recurrence after five years in about 70 per cent. In the extrinsic group and in those with demonstrable cervical lymph node metastasis, the number of cures are about 20 per cent.

In conclusion, it is our obligation as physicians to advise the public concerning the frequency of cancer of the larynx, its early symptoms, the importance of prompt recognition and the excellent results that may be secured if appropriate treatment is instituted early. As laryngologists, it is our duty to investigate every patient with persistent hoarseness or other laryngeal symptoms utilizing all of the commonly accepted diagnostic procedures with a view of ruling out cancer. If a diagnosis of cancer is made, prompt appropriate treatment should be instituted.

1530 Locust Street.

CANCER NOT TRANSMISSIBLE

There is no possibility and hence no danger of the transferring of cancer from cancerous cattle to human beings through eating meat from such animals, *The Journal of the American Medical Association* for April 15 says. Cancer is not transmissible, even by transplantation, from one mammalian species to another, e. g., from cattle to man.

THE TREATMENT OF PNEUMONIA WITH SULFAPYRIDINE*

By JACK BASMAN, M. D. and W. L. COOKE, M. D.
Charleston, West Virginia

With the marked success of sulfanilamide in streptococcic, meningococcic and gonococcic infections it was only natural that further search would be made for a similar drug which would be effective against pneumococci. A derivative of sulfanilamide (sulfanilamide-pyridine) was found by English workers to protect mice against pneumococci and has been marketed by May and Baker under the name "M and B 693." In this country the drug is produced by Merck and Company under the trade name of "Dagenan." Sulfapyridine is the name suggested by the Council on Pharmacy and Chemistry of the American Medical Association.[1] The studies which we report later in this article were made possible by a generous supply of the drug furnished by Merck and Company before it was available through the usual commercial channels.

No other therapeutic agent has attracted so much attention since the appearance of sulfanilamide and if the test of time bears out early reports and promises, sulfapyridine will take its place with sulfanilamide as one of the great advances in chemotherapy. As yet there is little known about its limitations and dangers, although it has been used for over a year in England and for many months in this country. A final judgment of the efficacy of sulfapyridine can only be made after a study of many reports of independent clinical investigations and it is with this in mind that we publish our results.

PHARMACOLOGY

Sulfapyridine is an almost tasteless, white crystalline powder, soluble in water at one part in a thousand at room temperature.[2] It has the chemical name of "2 (para-aminobenzenesulphonamido) pyridine."

Wien[3] determined that the average lethal dose for mice and rats was four times that of sulfanilamide. Marshall and his co-workers[4] could not confirm this and believe that sulfapyridine after absorption is more toxic than sulfanilamide. The concentration of sulfapyridine in the blood, urine and other body fluids can be determined by the methods described by Marshall and Litchfield[4] when the standards are made up with sulfapyridine instead of sulfanilamide.

Whitby[5] reports that "despite its relative insolubility the drug is readily absorbed from the gastrointestinal tract even more rapidly than sulfanilamide, but is excreted more slowly." Long[1] found that the concentration of the drug in the blood of man is held at higher levels than comparable doses of sulfanilamide. From reports[5] sulfapyridine seems to be more effective in pneumococcus types I, II, III, V, VII and VIII. It is also reported as being effective against Friedlander's bacillus and Clostridium welchii in mice.

Whitby[6] states that in experimental pneumococcic infections the drug acts by bringing about degenerative changes in the capsular material of the pneumococcus. Fleming[7] and also Bliss[1] failed to observe this change but both authors agree on the fact that the multiplication of organisms is decreased both in

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TABLE 1. CASES OF LOBAR PNEUMONIA TREATED WITH SULFAPYRIDINE

Case Age Sex Race	Day of Disease	Involvement	Type	Temperature Initial Drop From	To	Hrs	Dosage Gms	Days	Blood Concentration Mgs. %	Blood Counts Hgb	rbc	wbc	polys	Toxic Symptoms	Hosp Days	Other Therapy	Remarks
No 1 7990 MB 42 F W	2	Left Lower Lobe	II	104.4	99	32	40.5	10	8.7 4.7 2.5 7.7 7.4	65 70 65 65 70	4.1 4.1 4.0 4.1 4.1	10.8 11. 18. 14. 8.7	80 76 79 78 76	cyanosis Nausea	12	Nasal oxygen	There was a secondary rise in temp. when drug was discontinued after 60 hrs. R
No 2 8140 MW 68 F W	1	Right Lower Lobe	XVI & XXIX	104.	98	12	13.5	5	8.0 7.0 9.0 4.3 7.6	76 78 76	4.4 4.3 4.7	16.9 9.5 8.5	76 40 65	Vomiting Headache	6	None	Polys dropped to 40% but returned to 65% in 2 days. R
No 3 7868 NS 22 F W	?	Right Upper Lobe	II	104.	99.5	40	16.5	5	1.7 1.7	68	4.2	9.7	70	None	6	None	RECOVERED
No 4 7965 LT 13 M W	1	Right Lower Lobe	XXVII	103.2	98	20	10.5	4		68 68 70	4.1 4.0 4.2	19.1 20.7 8.7	90 92 60	Vomiting Neusee Skin rash	6	None	Rash occurred after leeving hospitel and promptly subsided. RECOVERED
No 5 7871 JB 35 M W	2	Right Lower Lobe	II	104.	100	20	20.7	5	6.0 5.4 8.2 6.1	78 78 69 65 73	4.6 4.5 3.9 3.9 4.1	16. 19. 13. 8.8 10.1	82 85 70 72 70	None	11	None	RECOVERED
No 6 7762 AA 30 M W	4	Left Lower Lobe	II	105.	99	12	21.5	5	6.9 8.2 4.6	75 75 73 65 78	3.6 3.5 3.4 4.0 3.2	21.7 21.7 21.5 14.7 15.8	92 92 79 88 72	None	13	Nasal oxygen	Acutely ill on admission. RECOVERED
No 7 7830 MG 33 F W	2	Right Lower Lobe	II	103.	99.4	12	23.7	6	5.1 6.5 3.7 1.3	70 71 71	4.3 4.0 4.2	30.0 15.0 7.0 9.0 6.8	90 84 76 66 60	Epigestric Discomfort	8	None	RECOVERED
No 8 7922 AS 37 M C	2	Right Upper Lobe	None Found	103.	99.4	12	21.05	5		80 78	4.6 4.1	13.2 7.1	74 65	None	8	None	Recovered
No 9 7913 JB 21 M W	3	Right Lower Lobe	II	101.5	99	12	19.25	5	1.6	72 72	3.5 4.4	18. 11.	88 68	Vomiting	7		Recovered
No 10 7889 PC 22 F W	2	Left Lower Lobe	XXVII	100.5	98	12	19.25	5		50 65 60 62 62	2.9 3.3 3.2 3.8 3.8	20.2 16. 8. 8.1 7.3	85 82 62 64 61	None	7		Patient 7 months pregnent. Recovered
No 11 7754 KT 5 M W	2	Left Upper	None Found	106.5	100.5	5	2.	5		35 60 60	4.0 3.8 3.8	27. 18.4 16.8	89 72 88	None	8		Recovered
No 12 7779 KH 10 months M W	5	Right	None Found	105.5	98	12	1.75	6	1.2	60 52 55 75	3.8 4.0 4.1 4.4	52. 19.5 12.5	64 48 70	None	25	Oxygen	Congenital syphilis. Moribund on admission. Recovered.
No 13 8002 PS 52 M C	5	?	None	103.			4.25	Hrs 4		65	3.4	5.8	63		Hrs 6		Morbund on admission. died 6 hrs after adm.
No 14 7963 SJ 2 M W	3	Right Lower Lobe	None Found	104.	97	24	1.3	Days 2	2.4	55	2.7	15.6	74		5		Recovered
No 15 8259 EK 23 M W	1	Right Middle Lobe	VII	104.	98	28	32.5	7	7. 8.7 6.7 5.4 1.4	78 78	5.1	19.7 11.6 8.5 14.6 9.8	86 88 57 74 70		7		Recovered. Positive blood culture
No 16 7087 ED 11 M W	2	Right Middle Lobe	None Found	100.4	99	36	5.5	4	2.3 1.7	60 65 65 70	4.6 3.4 4.1 4.6	25. 7.7 8.6 8.3	90 69 64 68		9		Recovered
No 17 St.P DH 38 M W	½	Right Lower Lobe	II	102.2	100	12	13.5	4		110 110	5.4 5.5	22. 19.3 14. 8.8	89 94 96 79		7		Recovered

vitro and in vivo following administration of sulfapyridine. Especially does it increase the killing power of normal human blood against pneumococci and streptococci. Another suggested mode of action is that the drug has a detoxicating or immunizing action, i.e., it stimulates phagocytic activity and other parts of the natural defensive mechanism. However, it is a generally accepted hypothesis that the drug is not specifically concerned with the immunity mechanism. Whitby also describes a "lag phenomenon," i.e., that the drug is not instantly bactericidal. This failure of bacteriostatic action endures for some time and yet in 24 hours the infection may end.

REVIEW OF CLINICAL REPORTS

Whitby in the May 28, 1938 issue of *Lancet*, reported on the activity of sulfapyridine against pneumococcic infection. The substance appeared to protect the mouse against 10,000 lethal doses of pneumococcus type I and to afford considerable protection against other types of pneumococci. He also felt that sulfapyridine was just as effective as sulfanilamide against hemolytic streptococci and meningococci. Many workers such as Macgrath and Vollum[8] in England, and Mayer[9] in France, have proven the bacteriostatic properties of sulfapyridine.

Barnett, Hartman, Perley and Ruhoff[2] working in the St. Louis Children's Hospital reported forty-nine cases of pneumonia treated with sulfapyridine with encouraging results. They suggest that after 24 hours without improvement specific sera should be used if available. The toxic symptoms in this group were comparatively mild and cyanosis was controlled by administering methylene blue as the authors[10] had recommended in sulfanilamide.

Flippen, Lockwood, Pepper and Schwartz[11] reported a hundred typed cases of pneumonia treated in Philadelphia with sulfapyridine. There was a critical temperature drop followed by a prompt clinical improvement within twenty-four to forty-eight hours in most cases. They concluded the drug could be used with a satisfactory safety margin.

Many others too numerous to mention, including Herbert Brown,[12] Evans and Gaisford,[13] and Langley,[14] have reported excellent results from the use of sulfapyridine in pneumonia. Edgar Lawrence[15] reported two cases of type III pneumonia with definite cures. Dyke[16] reported a case of pneumococcic septicemia and a case of pneumococcic meningitis as cures, but no type was mentioned.

The successful use of sulfapyridine has been reported in other infections than that caused by the pneumococcus. Maxwell[17] had a 24 year old male with one positive staphylococcus aureus culture who responded to sulfapyridine. Feton and Hodgkiss[18] also report a recovery from staphylococcus aureus blood stream infection with multiple abscesses. As both of these cases had only one positive culture there is some reason to question the possibility of contamination.

Hobson and Macquaide[19] in one article and Cunningham[20] in another, report excellent results with sulfapyridine in meningococcic meningitis. They felt the flow of sulfapyridine into the cerebrospinal fluid was facilitated by the inflammation of the choroid plexus. The total dosage ranged from 25 to 90 grams per patient.

There are at least four reports from the English literature[21 22 23 24] telling of excellent results in the treatment of gonorrhea with the drug.

METHODS

We have limited our cases to those that were hospitalized and have tried to have confirmatory x-ray diagnosis as well as complete laboratory work including typing in all cases. The drug was furnished any member of the staff of the Charleston General Hospital willing to cooperate with the study and one case was treated in another local hospital. Daily blood counts and blood sulfapyridine concentration readings were obtained while the drug was being administered in the majority of cases. The cases were not picked, the drug being used in all cases which were available to us in the hospital.

TABLE 2. CASES OF BRONCHIAL PNEUMONIA TREATED WITH SULFAPYRIDINE

Case Age Sex Race	Day of Disease	Involvement	Type	Temperature Initial Drop From	To	Hrs	Dosage Gms	Days	Blood Concentration Mgs %	Blood Counts Hgb	rbc	wbc	polys	Toxic Symptoms	Hosp Days	Other Therapy	REMARKS
No 1 8015 ET 22 F W	2	Bronchial, rt lower	Staph	101.8	99	30	15.	5	5.4 6.3 11.1 1.8	70 75 73 70 78	3.8 4.2 4.1 4.3 4.4	12.7 9.7 7.8 11.7 10.4	80 67 64 79 76	Nausea Vomiting & cyanosis	11	None	Followed auto accident with fracture of six ribs and rt clavicle
No 2 7856 TW M W	?	Bronchial, rt upper	XIX	103.	98.4	50	1.	3	2.	62 65 65 62 62	3.8 4.1 3.8 4.2 4.1	9.4 10.3 8.0 10.0 12.3	50 70 66 66 66		8		Recovered
No 3 7811 HT 6 month M W	2	Bronchial, bilat. mild	Staph & Strep	103.	98.2	40	.4	3		78 85	4.2 4.6	19.5 9.8	74 40		10		Recovered
No 4 7808 FS 2 month M W	3	Bronchial, bilateral	Staph & Strep	101.	99	32	1.2	3		60 55 56	3.8 3.4 4.5	12.7 13.5 13.8	68 40		6		Recovered
No 5 8143 AR 19 M W	1	Bronchial, rt hilus	XIV	102.4	98.4	12	19.5	5	5.2 5.5 6.6	72 72 72 75 75	4.4 4.6 4.4 4.4 4.0	14.9 19.4 13.8 17.6 21.3	88 86 80 80 86	Nausea Vomiting & cyanosis			Postoperative Apperdectomy. X-ray showed chest clear in 6 days. Rec.
No 6 7752 OJ 50 M C	?	Bronchial, bilateral conflu.	Staph	None			7.2	2	4.3	78 75	4.7 4.1	28.5 15.4	85 82		3	Oxygen	Died
No 7 8004 Ab 65 W M	2	Bronchial, rt hilus	None	102	98.6	12	25.7	6	2.1 6.5 5.2 5.7	88 86 88 88 85	4.1 4.6 4.7 4.6 4.6	16.8 10.6 12.8 12.6 16.0	80 72 70 74 78	Nausea	9		Recovered
No 8 8152 MS 55 m W	?	Bronchial, rt upper	XXIV	102.6	99.4	8	22.5	4	6.5 6.3 10.5 10.2	75 75 75 76 75	4.2 4.4 4.5 4.5 4.3	17.4 16.9 14.6 18.0 12.4	80 77 76 80 73	None	15	None	Recovered
No 9 7942 AK 9 month F W	3	Bronchitis	None	104	99	12	.5	1		40 72	3.5 4.0	20.0 7.2	70 72	None	8	Transfusion	O.M.P.A. bilateral on admission. Recovered.
No 10 8171 ES 20 M W	?	Bronchial, bilat. extensive	XX	103.8	102	4	22.2	5	9.7 3.7 9.2	95 78	5.0 4.7	19.5 20.0	90 92	Nausea and vomiting		Transfusion	Postoperative append. abscess. X-r showed chest clear 6 days
No 11 8325 OS 25 M C	1	Bronchial bilateral	IX	104.	100	12	20.5	5	2.6 3.8 5.0 4.5 1.0	75 78	4.3 4.3	8.8 4.5 3.4 4.1 4.9	68 56 16 37 48		8		Agranulocytic reaction.
No 12 7471 LK 8 months F W	2	Right upper, left lower	None Found	105.	No	Drop 6	6.	6		60 75 68 65	3.3 4.0 4.0 3.9	10.5 11.5 8.3 9.8	70 80 69 60				Failure to therapy. Chronic pneumonitis. In hospital yet
No 13 88196 IP 10 F W	?	Right middle, rt lower	None Found	105.	100	30	2.	2		 62 68	 4.3 4.1	20. 19.5 18.9	90 74 84		10		Sterile blood culture. Recovered.
No 14 8314 LJ 6 wks F W	2	Rt and left	?	101.	98	6	1.2	2		65	3.9	22.4	61		7	Oxygen therapy	Morbund on admission. Recovered

The dosage of .05 grams per kilo (2.2 lbs.) of body weight was given at once. This was followed by a similar amount (.05 grams per kilo) every 24 hours in six divided doses at four hour intervals. All medication was by mouth. As a rule the drug was continued for four days but in several cases this was varied.

Since January 26, 1939, when the drug first became available we have administered it to 36 cases, 31 being confirmed by x-ray of the chest. These were divided into 17 cases of lobar pneumonia and 14 cases of bronchial pneumonia. In addition, five cases are included which could not be classified in the above, they being two cases which also had serum, two cases of non-pneumococcic blood stream infection and a case of atelectasis. This last group is included to show the mildness of toxic reactions in our experience. A summary of all cases is shown in Tables 1, 2 and 3.

In the seventeen cases of lobar pneumonia there was only one death; a colored male, 52 years old (Case No. 13) who was only in the hospital six hours. There was only one death in the fourteen cases of bronchial pneumonia, a middle-aged colored male (Case No. 6). Table 4 shows an analysis of the age groups. There was no mortality in infants and children. The mortality in adults was six per cent for lobar pneumonia and seven per cent in bronchial pneumonia.

TABLE 4. AGE DISTRIBUTION

	Infants	Children	Adults
Lobar	2	2	13
Bronchial	6	1	7

Typing was attempted on all cases, but in eleven cases no bacteria could be found. Table 5 shows the distribution of types.

TABLE 5. SPUTUM TYPES

Lobar		Bronchial	
Type	Cases	Type	Cases
II	7	1X	1
VII	1	X1V	1
XV1 and XX1X	1	X1X	1
XXV11	2	XX	1
None Found	6	XX1V	1
		Staph.	2
		Staph. & Strep.	2
		None Found	5

The lobar pneumonia death was untyped and the bronchial pneumonia death showed staphylococci but only on a postmortem lung puncture with possibility of contamination.

The improvement was prompt in most cases and it is our impression that hospitalization is lessened. As the bronchial pneumonias were so often associated with other conditions it is

TABLE 3. MISCELLANEOUS CASES TREATED WITH SULFAPYRIDINE

Case Age Sex Race	Day of Disease	Involvement	Type	Temperature Initial Drop From	To	Hrs.	Dosage Gms	Days	Blood Concentration Mgs %	Blood Counts Hgb	rbc	wbc	polys	Toxic Symptoms	Hosp. Days	Other Therapy	Remarks
No 1 8073 AS 51 W F	?	Bronchial bilat. severe	XVIII	None			21.5	5	3.5 5.6 4.6 5.4	60 58 65 68	3.3 3.6 3.8 4.0	27.6 29.6 15.3 11.6	89 96 90 84	Nausea Vomiting & cyanosis	6	200,000 U type 18 Serum	Postmortem showed a biliary fistula. Lung culture pos. for B coli
No 2 6871 NR 71 M W	?	Bronchial Rt hilus	None	None			16.5	6	1.4 1.4 1.6 2.3	65	3.8	12.7	76			120,000 U type 1 serum. Transfusion	Lobar pn. cleared with serum on left but followed by empyema. Rt br two months lat recovered with sulfapyridine
No 3 7914 JS 78 M C	1	Atelec. left lower	Strp	None			28.2	7		72 73	4.2 4.4	14.6 16.0	84 80				Recovered.
No 4 7494 TH 41		Subacute bacterial endocarditis. Staph. Non-hemoly.	Staph	None			22.7	13	10.7	78 62	4.4 3.8	13.3 7.1	85 70			Transfusions	3 pos blood cultures. Postmortem confirmed diagnosis.
No 5 7656 TS 56 F [illegible]		Bacteremia from Oral Strept. viridans	None				19.4	4	4.1 4.4 4.6 1. 1.7	64 57	3.8 3.9	16.0 17.0	92 89	Nausea & cyanosis		Transfusions. Sulfanilamide	2 pos blood cultures. Postmortem confirmed diagnosis

useless to emphasize the length of time before discharge. In the lobar pneumonia cases, excluding the mortality, the average hospital stay was nine days. This compares with an average stay of sixteen days for all cases of lobar pneumonia treated in the hospital during 1938.[25]

As you will see from Table 3, there were three deaths in the unclassified group. Two of these were non-pneumococcic bacteremias upon whom the drugs showed no results. The third death had been diagnosed as bronchial pneumonia on x-ray but post-mortem showed a biliary fistula with colon bacilli in the lungs.

The most spectacular results are undoubtedly in the cases of lobar pneumonia where the temperature reaction is truly amazing.

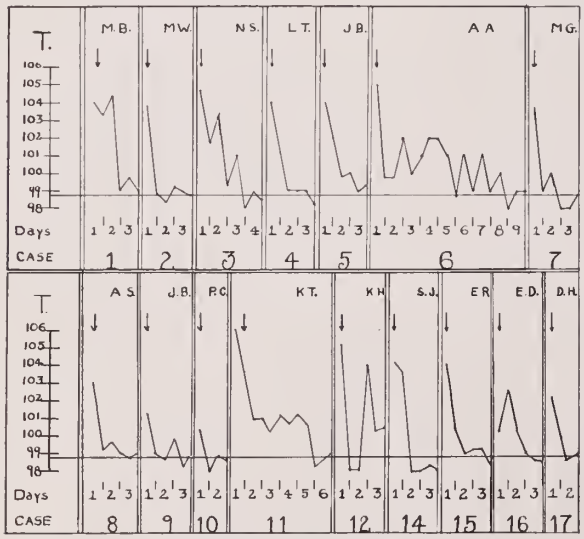

Figure 1. Relationships of fall in temperature to administration of sulfapyridine in the cases of lobar pneumonia. The arrow shows time drug was started.

(Fig. 1). As the bronchial type of infection tends to run a more irregular temperature chart, the graphic representation is not so striking. There was only one case beside the mortalities which showed no definite response to the drug: Case No. 12, among the bronchial pneumonias. There were absolutely no complications which developed in either pneumonia group.

TOXICITY

Recognizing the marked tendency to toxic reactions in the sulfanilamide group of drugs we have tried to keep a very close check on the patients receiving sulfapyridine. Blood counts were made at frequent intervals and daily in some cases while the drug was being administered. Particularly were we interested in the development of agranulocytosis as we have observed four cases at the hospital which we attributed to sulfanilamide.[26] In only one of our cases receiving sulfapyridine was there an especially marked leukopenia; in a negro male, aged 25 (Case No. 11 among the bronchial pneumonias), who was admitted with many râles over the entire chest, history of chill and sharp chest pain, and bloody sputum which was positive for pneumococcus type IX. His white blood count on admission was only 8,800 with 68 per cent neutrophils. After receiving sulfapyridine four days, his blood count dropped to 3,400 with only 16 per cent neutrophils. No medication was given for the leukopenia and by the time of discharge the count was 4,990 and the neutrophils had risen to 48 per cent. There were no physical signs of agranulocytic angina. It is interesting to note that the x-ray of this patient failed to show evidence of pneumonia.

Case No. 4 in the lobar group, a thirteen year old white male, developed a skin rash after leaving the hospital. This promptly subsided and he had returned to school two weeks after the beginning of the pneumonia.

The outstanding feature of all reports is the apparent lack of toxicity. Some of our cases showed slight cyanosis, nausea and vomiting.

TABLE 6. TOXIC REACTIONS

Nausea	8
Vomiting	7
Cyanosis	5
Dermatitis	1
Agranulocytosis	1
Headache	1
Epigastric pain	1

Occasionally in children it was necessary to administer the drug in jelly, egg whites or fruit juices as recommended by Barnett, Hartman, Perley and Ruhoff.[2] We also found that smaller amounts of the drug at more frequent intervals were better tolerated. In no case did the drug have to be discontinued because of vomiting or nausea. Barnett

and Hartman[2] recommend a two per cent suspension by rectum if vomiting is severe. We had planned to administer methylene blue for cyanosis, but we had no more evidence of this than in the average pneumonia patient and never felt methylene blue to be indicated.

Lloyd, Erskine and Johnson[24] report six cases developing rash in 108 cases treated.

BLOOD CONCENTRATIONS

The blood concentrations varied from 1.0 to 11.1 mgs. per cent and seemed to vary greatly from day to day. We have found that the blood concentration for sulfanilamide[27] remains more constant if the drug is given every hour. It may be that our sulfapyridine blood concentrations would prove more constant if the dosages were on a one or two hour schedule instead of a four hour basis. We can arrive at no conclusions regarding the optimum level for sulfapyridine in the blood from these studies. MacCall[28] in a recent article feels that the concentration of two mgs. per cent in the blood may be sufficient. Because of the low solubility of sulfapyridine the blood level to be expected from a given dose cannot be predicted.

DISCUSSION

The determination of dosage was not influenced by age nor degree of illness, but by the body weight of the patient. In acutely ill patients it may be necessary to give larger doses. We realize that this is entirely too small a series of cases from which to draw any conclusions. We do know that the mortality for all cases of lobar pneumonia admitted to the Charleston General Hospital for the calendar year 1938 was 20.5 per cent. It is our impression that pneumonia is more mild this winter; for, during the period from January 1, 1936, to January 1, 1938, the hospital mortality averaged 27.6 per cent for all cases of lobar pneumonia. We have certainly never seen a series of like size and similar period of time with as low a mortality as in these cases treated with sulfapyridine.

We do not feel that the time has come to discard serum therapy but the results have been nothing short of astounding. As the virulence of pneumonia differs from year to year it is as yet too early to evaluate authentically the rôle sulfapyridine will play in its treatment. It is only through use and observation of the drug that we will be able to find its place in therapy.

The one death in the lobar group should not be considered in the analysis of the statistics as the patient died immediately after admission.

SUMMARY

1. Seventeen cases of lobar pneumonia, fourteen cases of bronchial pneumonia, and five miscellaneous cases were treated with sulfapyridine.

2. Toxic symptoms in all cases were mild, although there was one case of dermatitis and one agranulocytic leukopenia.

3. Only two deaths occurred in the pneumonia cases, one of whom was in the hospital only six hours.

CONCLUSIONS

Sulfapyridine is apparently a very useful drug in the treatment of pneumonia. It is advisable to observe carefully the patients treated for leukopenia and other toxic reactions. Only time will serve to evaluate its efficacy.

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SULFAPYRIDINE (DAGENAN) THERAPY

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SEVERAL articles on the use of sulfapyridine (dagenan) in pneumococcic infections have appeared in recent lay and medical journals since Whitby,[1] early in 1938, made his original report. All of this publicity has aroused general interest in the therapeutic value of this new sulfanilamide derivative and extensive clinical trial is being conducted all over the country. Barnett,[2] Flippen,[3] Long[4] and their associates have given excellent summaries of the published reports in a recent issue of the *Journal of the American Medical Association*. No attempt will be made to abstract further the literature on the drug.

During the past two months, 30 cases have been treated with dagenan at Cook Hospital, Fairmont, W. Va., twenty-one of them having been pneumococcic infections. The remaining cases have been miscellaneous infections which are also included in the protocols that follow.

Great difficulty was experienced in obtaining sufficient sputum for typing, especially in infants. The pneumococcus could be demonstrated upon smear and frequently there was enough sputum to run through some of the groups for typing, but not enough for isolation of the specific pneumococcus. Culture methods were tried but cultures made by swabbing the epiglottic area during a cough or while the child was gagging would quickly be overgrown by the staphylococcus and streptococcus organisms. Laryngeal cultures were not attempted because the patients were too ill to be subjected to such exertion, especially when a therapeutic trial of the drug would produce such dramatic improvement within a few hours.

Many patients had difficulty retaining the drug because of nausea and vomiting. We found that by giving smaller doses at more frequent intervals some patients could tolerate the drug better. In a few cases, phenobarbital was administered with satisfactory results to counteract the gastric irritability. Infants and young individuals seem to tolerate the drug better that adults, possibly because the drug is taken in milk or at feeding time.

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The usual plan of dosage was that suggested by Evans and Gaisford,[5] where a double initial dose is given and then a single dose every four hours until a total of 25 gms has been administered. The drug was continued for at least three days after the tempertaure was normal and, even under this plan, there were several relapses requiring additional therapy.

Supportive treatment in the form of proper diet, oxygen, stimulation, parenteral fluids and transfusions was given according to indications. Several children developed otitis media, requiring paracentesis of the eardrum, while under treatment. Cultures from the purulent discharge in every case showed a staphylococcus infection. This complication cleared up in a few days, leaving the impression that sulfapyridine may have hastened the convalescence.

PROTOCOLS

Case 1: F. J., age 50 years. Case of Dr. A. H. Stevens. Diagnosis: Pneumococcic pneumonia. Organism failed to type.

Illness of two days' duration. Temperature 102.2 on admission. Definite physical signs of pneumonia. Hemoglobin, 75 per cent; white blood count, 16,000; polymorphonuclears, 90 per cent; small lymphocytes, eight per cent; large lymphocytes, two per cent. Urine, albumin one plus; sugar negative; a few leucocytes in the centrifuged specimen. Sulfapyridine ordered, two gms. initial dose, and one gm. every four hours thereafter. Total medication, 14 gms. Temperature normal in 24 hours. Home on fourth day. No toxic manifestations.

Case 2: F. C., age six months. Diagnosis: Influenza complicated by pneumonia. Pneumococcus on smear. Culture overgrown. No type isolated.

Illness of two days on admission. Patient apparently in moribund condition. Immediately placed in oxygen tent and coramine administered. Temperature, 101.3. Hemoglobin, 90 per cent; red blood count, 5,000,000; white blood count, 25,000; polymorphonuclears, 71 per cent; small lymphocytes, 10 per cent; large lymphocytes, 17 per cent; myelocytes, two per cent. Urine, albumin two plus; sugar negative; two plus hyaline and granular casts. Sulfapyridine ordered, one-eighth gm. every four hours. Temperature normal on second day; medication stopped on fifth day. Recurrent pneumonia and bilateral otitis media on sixth day; patient very ill, temperature 105. Sulfapyridine resumed, one-fourth gm. every four hours. Paracentesis of eardrums; culture grew staphylococcus aureus. Vomiting occurred frequently. Intravenous fluids administered. One transfusion given. Temperature normal again on tenth day. Discharged on thirteenth day. Total medication, 17 gms. Toxic manifestations: vomiting and mild cyanosis.

Case 3: R. L., age 13 months. Diagnosis: Influenza, complicated by pneumonia. Pneumococcus on smear. Culture overgrown. No specific type isolated.

Patient ill two days before admission. Definite lobar pneumonia of right upper lobe. Temperature 103. Sulfapyridine ordered, one-eighth gm. every four hours. Temperature normal in 24 hours. Medication discontinued on the fifth day. Next day, temperature 103. Medication resumed, increasing to one-fourth gm. every four hours. The temperature was normal again in 24 hours. Medication continued for four days, with recurrence of temperature the day after medication was stopped. Again, the sulfapyridine was given for four days longer. No further recurrence. Total medication, 13 gms. No toxic manifestations.

Case 4: W. S., age 50. Case of Dr. L. D. Howard.

Diagnosis: Pneumococcic pneumonia, type I, postoperative.

Patient was convalescing from a gall-bladder operation and appendectomy when he developed pneumonia on the fourth day after operation. Pneumococcus type I was isolated from the sputum. Type I serum was administered with prompt effect but patient became worse two days later and was very ill for the next three days. Sulfapyridine was ordered, two gms. initial dose and then one gm. every four hours. Temperature was normal in 48 hours. Rapid convalescence thereafter. Total medication: 22 gms. No toxic manifestations.

Case 5: E. M., age six weeks. Pneumococcic pneumonia, type VIII.

Patient acutely ill for 24 hours. Temperature, 102; respirations very rapid and grunting in type. Immediately placed in oxygen tent and sulfapyridine ordered, one-eighth gm. every four hours. Otitis media, requiring paracentesis the next day. Tem-

perature normal the third day. Rapid convalescence. Total medication: 2.5 gms. No toxic manifestations.

Case 6: G. E., age seven weeks. Diagnosis: Pneumonia, pneumococcic type, complicating exfoliative dermatitis. No type isolated.

This baby had been ill with exfoliative dermatitis for 10 days; convalescence was satisfactory until consolidation of the right lower lobe, followed by involvement of the entire right lung developed on the tenth day. Hemoglobin, 57 per cent; red blood cells, 2,570,000; white blood cells, 26,000; polymorphonuclears, 61 per cent; small lymphocytes, seven per cent; large lymphocytes, 30 per cent; eosinophiles, one per cent. Kahn test negative. Sulfapyridine, one-eighth gm. ordered every four hours; two transfusions; oxygen therapy and stimulation given but patient steadily grew worse and died on the fifth day of the pneumonia. There was marked cyanosis in this case. Total medication: two gms.

Case 7: B. B., age four years. Diagnosis: Influenza complicated by pneumonia. Pneumococcus on smear. Culture overgrown. No type isolated.

This patient had been very ill for 24 hours before admission and was immediately placed in an oxygen tent. The entire chest was full of râles and there were consolidated areas on both sides posteriorly. Sulfapyridine ordered, one-half gm. every four hours. Total medication: Six gms. Temperature normal in 24 hours. No toxic manifestations.

Case 8: L. M., age 13 months. Diagnosis: Influenza complicated by pneumonia. Pneumococcus organisms on smear. Culture overgrown. No type isolated.

Very ill on admission; temperature, 105; respirations very rapid and grunting in type. Hemoglobin, 40 per cent; red blood cells, 1,700,000; white blood cells, 8,400; polymorphonuclears, 60 per cent; small lymphocytes, 32 per cent; large lymphocytes, four per cent; myelocytes, four per cent. Blood Kahn negative. Urine: albumin, one plus; sugar negative; few leucocytes and casts in centrifuged specimen. Sulfapyridine ordered, one-fourth gm. every four hours. Two transfusions given. Normal temperature in 48 hours. Discharged home on fourth day. No toxic manifestations.

Case 9: H. P., age 13 months. Diagnosis: Influenza complicated by pneumonia. Pneumococcus on smear. No type isolated.

Quite ill on admission. Temperature 104.3. Bilateral otitis media requiring paracentesis of drums. Staphylococcus on culture from ears. Sulfapyridine ordered, one-eighth gm. every four hours. Total medication: 3.5 gms. Temperature normal on sixth day; home on twelfth day. This infant had marked anorexia, requiring gavage feedings for over a week.

Case 10: G. M., age 64. Case of Dr. J. B. Clinton. Diagnosis: Pneumococcic pneumonia, type VI.

Ill 24 hours with definite signs of lobar pneumonia. Blood pressure, 260 systolic; 120 diastolic. Sulfapyridine ordered, two gms. initial dose and then one gm. every four hours. Temperature normal on second day. Medication stopped on third day because of nausea. Recurrence of temperature; medication resumed. Total medication: 25 gms. No toxic manifestations other than nausea. Temperature normal 24 hours after medication was resumed.

Case 11: Baby R., age one week. Diagnosis: Pneumococcic pneumonia, type XIX.

Infant ill two days before admission. Weight seven and one-half lbs. Cord blood Kahn, two plus; mother has syphilis. Definite pneumonia, confirmed by fluoroscopy, involving right upper and left lower lobes. Respirations 130 per minute. Placed in oxygen tent immediately. Bilateral otitis media developed on second day, requiring paracentesis of eardrums; staphylococcus on culture. Sulfapyridine ordered, one-eighth gm. every four hours for four doses; no improvement. Dose increased to one-fourth gm. every four hours. Nausea and vomiting resulted. One-eighth gm. then ordered every three hours. This was well tolerated. Total medication: 6.25 gms. This infant never showed any improvement and expired on ninth day of illness. Autopsy revealed consolidated areas in every lobe, the right upper and left lower being completely solidified. Cultures from the lung grew pneumococcus organisms which had lost their type specificity. There was also a pneumococcic peritonitis, organisms being present on smear and culture. This infant had marked cyanosis which was treated with methylene blue intravenously with definite improvement in four hours. Blood studies showed a slight anemia during the illness. The white blood cells rose from 22,000 on admission to 47,000 on the day of death.

Case 12: Mrs. D., age 69. Case of L. R. Lambert. Diagnosis: Pneumococcic pneumonia, type III.

Illness of 24 hours; temperature, 103; complete solidification of right lower lobe. Sulfapyridine ordered, two gms. initial dose and one gm. every four hours thereafter to a total of 15 gms. Temperature normal in 30 hours. Nausea and vomiting after first 24 hours.

Case 13: C. D., age seven years. Diagnosis: Pneumococcic pneumonia. Pneumococcus on smear. No type isolated.

Ill 36 hours before admission. Right lower lobe solidified. Sulfapyridine ordered, one-half gm. every four hours to a total of 20 gms. Temperature normal on third day. Rapid convalescence. Nausea and vomiting after first 24 hours.

Case 14: H. C., age 11 years. Case of Dr. E. D. Wise. Diagnosis: Pneumococcic pneumonia, type IV.

Sudden onset; ill 36 hours. Hemoglobin, 80 per cent; red cell count, 4,200,000; white cell count, 16,000. Urinalysis: normal findings. Sulfapyridine ordered, one-half gm. every four hours. Temperature normal in 48 hours. Total medication: 10 gms. No toxic manifestations.

Case 15: P. Y., age 24 years. Case of Dr. J. P. Trach. Diagnosis: Pneumococcic pneumonia, type XVI, complicating arsphenamine reaction.

This patient had been hospitalized for two weeks because of arsenical reaction from antisyphilitic arsphenamine therapy. Patient had jaundice and arthritis, making slow progress when he developed lobar pneumonia. Hemoglobin, 100 per cent; red cell count, 4,700,000; white cell count, 16,000; polymorphonuclears, 79 per cent; small lymphocytes, nine per cent; large lymphocytes, 10 per cent; myelocytes, two per cent; Kahn, three plus. Van den Bergh: delayed direct reaction. Urine: negative except for trace of albumin and a few casts. Sulfapyridine ordered, two gms. initial dose and then one gm. every four hours thereafter to a total of 25 gms. Temperature normal in 48 hours. Rapid convalescence. No toxic manifestations.

Case 16: M. G., age 13 months. Diagnosis: Pneumococcic meningitis.

This infant had been ill for three days before admission. Mild pharyngitis at onset. Temperature on admission, 105.3. Spinal fluid very thick and teeming with pneumococci. Meningococcic antitoxin given at first lumbar puncture. Sulfapyridine ordered, one-fourth gm. every four hours; total medication, four gms. Patient showed clinical improvement and also clearing of cerebrospinal fluid until third day when he developed convulsions and expired in a convulsive seizure. Autopsy refused. No toxic manifestations.

Case 17: F. T., age seven years. Diagnosis: Chronic recurrent staphylococcic empyema.

This child had empyema one year ago and was treated by closed drainage with recovery. She remained well until two months ago when there was a recurrence of the empyema in the same side. Rib resection was performed, followed by slight improvement and then a septic temperature developed. Staphylococcus present on culture from drainage. Sulfapyridine ordered, one-half gm. every four hours. There was definite clinical improvement with normal temperature in 24 hours. Persistent nausea and vomiting, uncontrolled by sedatives, made it necessary to discontinue the drug. Immediately the septic temperature returned. The drug was resumed on two other occasions with definite clinical improvement but each time vomiting made it necessary to stop the drug. Finally, the chest was reopened, better drainage established and the child made a slow recovery. Total medication: 24 gms. Toxic manifestations: marked nausea and vomiting.

Case 18: C. S., age nine years. Case of Dr. E. D. Wise. Diagnosis: Pneumococcic empyema, not typed.

This child had lobar pneumonia and developed empyema. He was brought in to the hospital and paracentesis of the chest revealed a pneumococcic empyema. Sulfapyridine ordered, one-half gm. every four hours. Total medication: 20 gms. No improvement. Closed drainage on eighth day, with rapid recovery. Organisms still present in fluid on eighth day. No toxic manifestations.

Case 19: E. W., age nine months. Diagnosis: Influenza complicated by acute bronchitis.

Patient acutely ill; temperature, 105. Sulfapyridine ordered, one-eighth gm. every four hours. Total medication: 1.5 gms. Temperature normal in 36 hours. Rapid convalescence. No toxic manifestations.

Case 20: Baby S., age six months. Case of Dr. L. D. Howard. Diagnosis: Influenza complicated by acute bronchitis.

Ill two days; temperature, 104. Râles throughout chest. Sulfapyridine ordered, one-eighth gm.

every four hours. Total medication: four gms. Temperature normal in 48 hours. Rapid convalescence. No toxic manifestations.

Case 21: J. W., age 11 years. Diagnosis: Meningoencephalitis following influenza.

Patient ill one week ago with influenza. Developed severe headache, right diploplia with drooping of right upper lid, stiff neck and back, and positive Kernig. On admission, temperature, 100; pulse, 40. Hemoglobin, 79 per cent; red blood cells, 4,110,000; white blood cells, 15,000; polymorphonuclears, 63 per cent; small lymphocytes, eight per cent; large lymphocytes, 20 per cent; eosinophiles, two per cent; myelocytes, seven per cent. Kahn negative. Urine negative. Mantoux tuberculin test negative. Spinal fluid: clear, under pressure; four plus globulin; sugar absent; cells, 800; polymorphonuclears and lymphocytes on smear. Suspicion of pneumococcus organism on smear. Culture of spinal fluid negative on four consecutive days. Sulfapyridine ordered, one-half gm. every four hours. Total medication: 8.5 gms. Rapid improvement. Spinal fluid normal in four days. No toxic manifestations.

Case 22: T. C., age 33 years. Case of Dr. J. P. Helmick. Diagnosis: Subacute bacterial endocarditis with embolism.

Patient had an embolism five days before treatment was started, causing hemiplegia. Streptococcus viridans on blood culture. Hemoglobin, 90 per cent; red blood cells, 4,500,000; white blood cells, 31,000; polymorphonuclears, 85 per cent; small lymphocytes, one per cent; large lymphocytes, five per cent; myelocytes, nine per cent. Patient had received several transfusions and sulfanilamide without benefit. Sulfapyridine ordered, one gm. every four hours. Total medication: two gms. Died suddenly of embolism. Autopsy confirmed diagnosis of subacute bacterial endocarditis.

Case 23: W. L., age 31 years. Case of Dr. E. D. Wise. Diagnosis: Pneumococcic pneumonia, type I.

Definite lobar pneumonia on admission. Hemoglobin, 90 per cent; red blood cells, 4,300,000; white blood cells, 15,000; polymorphonuclears, 84 per cent; small lymphocytes, six per cent; large lymphocytes, four per cent; myelocytes, six per cent. Kahn negative. Stool examination negative. Urinalysis: albumin, one plus; sugar negative; leucocytes, one plus, clear in five days. Sulfapyridine ordered, two gms. initial dose, and then one gm. every four hours. Total medication: 29 gms. Temperature normal in 48 hours. Return of temperature on fourth day, but again normal in 24 hours. Rapid convalescence. No toxic manifestations.

Case 24: J. M., age 70 years. Case of Dr. E. D. Wise. Diagnosis: Pneumococcic pneumonia, type XIII, postoperative.

Patient had an appendectomy for gangrenous appendicitis—drainage case. Developed postoperative pneumonia on the second day. Hemoglobin, 90 per cent; red blood cells, 4,400,000; white blood cells, 16,000; polymorphonuclears, 87 per cent; small lymphocytes, five per cent; large lymphocytes, six per cent; myelocytes, two per cent. Sulfapyridine ordered, two gms. initial dose and one gm. every four hours for total of 25 gms. Temperature was normal in 48 hours. At end of one week, red blood cells had fallen to 3,490,000 with hemoglobin of 71 per cent. Recurrence of temperature 24 hours after medication had been discontinued. Sulfapyridine resumed, 18 gms. being given. There was a third recurrence. Sputum still showed pneumococcic organisms but not type specific. Transfusion given. Sulfapyridine resumed for a total of 15 gms. The temperature would become normal each time in 48 hours and stay normal while the drug was being given. At this time the drainage from appendectomy increased considerably. Smear showed colon bacilli and staphylococci. There was a fourth return of temperature and signs of consolidation. Medication resumed for fourth time, 12 gms. being given. Free drainage from appendectomy incision established. Convalescence still very slow. Total medication in this case, 70 gms. Patient had mental confusion on several occasions.

Case 25: J. H., age four years. Diagnosis: Scarlet fever with complications.

This child had an average seizure of scarlet fever and was convalescing when he developed influenza and bilateral cervical adenitis. He was extremely ill, temperature from 102 to 106 for 10 days. Several immunotransfusions given. Convalescent serum and sulfanilamide used. Four blood cultures negative. Patient was making very slow convalescence when sulfapyridine was ordered, one-half gm. every four hours. Rapid improvement with complete recovery followed. Total medication: 2.5 gms. Nausea and vomiting on medication.

Case 26: L. F., age four years. Diagnosis: Lobar pneumonia. Culture grew staphylococcus, streptococcus and diplococcus organisms; no type isolated.

Ill two days on admission. Temperature, 104; respirations, 60; pulse, 160. Left lower lobe involved. Hemoglobin, 84 per cent; red blood cells, 4,390,000; white blood cells, 31,000; polymorphonuclears, 83 per cent; small lymphocytes, eight per cent; large lymphocytes, four per cent; myelocytes, five per cent. Urine: albumin, two plus; sugar negative; few leucocytes in centrifuged specimen. Sulfapyridine ordered, one-half gm. every four hours. Temperature normal in 48 hours. Nausea and vomiting developed on second day and controlled by phenobarbital. Total medication: 17 gms. Home on seventh day.

Case 27: D. M., age six years. Diagnosis: Tetanus complicating third degree burns of legs.

Child was burned while playing on burning slate pile. Twenty-five days later, he developed tetanus involving whole body, with marked opisthotonos. Temperature, 101. Hemoglobin, 70 per cent; red blood cells, 3,700,000; white blood cells, 9,100; polymorphonuclears, 70 per cent; small lymphocytes, 15 per cent; large lymphocytes, five per cent; myelocytes, 10 per cent. Urine: albumin trace; sugar negative; occasional leucocyte in centrifuged specimen. Forty-one thousand five hundred units tetanus antitoxin given intravenously in Hartmann's solution. Sulfapyridine ordered, one-half gm. every four hours. Forty thousand units of tetanus antitoxin again given on fourth day. Child had great difficulty taking food and liquids. Intravenous fluids were given several times and a transfusion was given on the fifth day. Convalescence was rapid. Sulfapyridine was discontinued on seventh day, total amount given, 27 gms. One week later, child seemed well of tetanus. Hemoglobin, 55 per cent; red blood cells, 3,000,000; white blood cells, 12,000; polymorphonuclears, 79 per cent; small lymphocytes, 12 per cent; large lymphocytes, eight per cent; basophiles, one per cent. A second transfusion was given preparatory to skin grafting. No toxic manifestations other than the anemia.

Case 28: Mrs. S., age 36. Case of Dr. A. H. Stevens. Diagnosis: Undulant fever.

This patient has been chronically ill for three years with undulant fever. For several months, she has had sulfanilamide intermittently with improvement. Sulfapyridine was tried but after a few doses the patient refused to take more because of nausea and vomiting. She was again given sulfanilamide. Convalescence continues very slowly.

Case 29: J. I., age 48. Case of Dr. S. S. Hall, Clarksburg, W. Va. Diagnosis: Lung abscess.

This case was bronchoscoped with improvement but temperature returned. A second bronchoscopic drainage was done and sulfapyridine ordered, two gms. initial dose and 1 gm. thereafter every four hours for a total of 25 gms. No recurrence of temperature. No toxic manifestations. Rapid convalescence.

Case 30: G. T., age 10 years. Case of Dr. J. C. Collins. Diagnosis: Lobar pneumonia, no type isolated.

This child had been acutely ill two days with pneumonia. Sulfapyridine ordered, one-half gm. every four hours. Total medication: 15 gms. Temperature normal in 48 hours. Rapid convalescence. No toxic manifestations.

SUMMARY

Nineteen cases of pneumonia are reported, using sulfapyridine therapy, with two deaths. Both of these deaths were in infants under two months, one apparently syphilitic and the other having a severe skin condition. Eleven other miscellaneous infections are included with one death, this being an infant with pneumococcic meningitis.

This series of cases is entirely too small to draw any definite conclusions. However, one gets the impression from observing these cases that sulfapyridine is a valuable addition to our list of drugs with definite therapeutic effect.

The sulfapyridine used in this study was very generously supplied by Merck & Co., Inc.

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ENDOCERVICITIS

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THE TERM endocervicitis strictly interpreted means an inflammation of the mucous membrane lining the cervical canal, but the structure of the endocervix is entirely different from that of the endometrium. In the body of the uterus, the glands of the endometrium are simple tubular glands and normally are confined to the mucous membrane. In the cervix, the mucous lining is very thin and the glands are long and branched, and grow directly into the walls of the cervix.

On microscopical examination of a section from a cervix with a so-called endocervicitis, it is found that the major evidences of infection are not in the glands but in the tissues of the cervix outside of the glands, and that the condition is really a cervicitis rather than an endocervicitis. It is important to bear this in mind when considering the treatment.

The vast majority of the infections of the cervical canal are non-specific. Only a relatively small percentage are due to a gonorrheal infection.

The symptoms complained of by the patient are an excessive vaginal discharge and occasionally some pelvic pain. The discharge may be clear, like the white of an egg, or it may be yellow. It varies in volume with the extent and intensity of the infection. It is very tenacious and difficult to remove. It is always increased in quantity immediately before and after the menses.

The discharge is very annoying. It soils the patient's clothing. It causes an excessive moisture of the external genitals and not infrequently causes a pruritus of the vulva. What is of great importance is that the sticky discharge closes the cervical canal so completely that sterility results. Further the probability is that every cancer of the cervix is preceded by an endocervicitis.

Women with a prolapse of the uterus where the cervix protrudes through the vulva very rarely have endocervicitis, and almost never have cervical cancer. The freedom from infection in the prolapsed uterus is undoubtedly due to the better drainage when it is in that position than is possible when the external os is in its normal position against the posterior vaginal wall.

There is usually no difficulty about the diagnosis. The persistent sticky discharge, the irritation of the external genitals, and the frequent complaint of sterility all point to the cervix as the probable source of trouble. On inspection the external os looks red and is plugged with sticky, tenacious mucus which is frequently mixed with some pus. The area of the cervix just external to the os appears red and eroded. The redness and erosion may extend over the whole end of the cervix. The erosion is superficial and includes only the columnar epithelium of the lower part of the cervical canal and the squamous epithelium covering the end of the cervix. Usually there is no associated vaginal wall infection.

There are several very good reasons for giving careful attention to this minor disease. Among these reasons are: the relief of the annoying discharge and its associated symptoms; the relief of one of the most frequent causes of sterility, and which is about the only cause of sterility for which we have any practical remedy, and last but not least, the lesion

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should be treated as a prophylactic measure against the development of squamous carcinoma of the cervix.

The list of therapeutic measures that have been used in the treatment of endocervicitis is a long one, but the two most practical methods are local applications of pure carbolic acid and the use of the electric cautery.

Before attempting to use any treatment, the cervical canal must be cleared of the discharge that plugs it up. The most efficient way to remove the discharge is to wrap a small amount of absorbent cotton on an applicator. Moisten the cotten with water and take up on the cotton a little pulverized caroid. Insert this into the cervical canal and allow it to remain about one minute. The sticky discharge will be completely liquified and easily wiped dry with plain cotton. The pure carbolic acid is then applied to the canal and to the red areas around it. The easy way to apply the carbolic acid is to use an applicator, the tip of which is small enough to insert through the external os about half an inch. Apply enough carbolic acid to turn the treated surfaces white.

Some powdered boracic acid is blown into the vagina and a glycerine tampon is inserted. A few treatments of this kind at intervals of three or four days will heal many of the minor cases, and nothing else will be needed. Even in cases where it is apparent that the cautery will be necessary, it is usually best to give one treatment of this kind as a preparatory measure.

In the use of the cautery, it must be borne in mind that two objects are to be attained: the cure of the local infection and the preservation of a functioning cervical canal. The latter means a cervical canal that will permit conception and will dilate normally to allow the passage of the child.

The curing of the infection can be done by anyone with any kind of a cautery, but the results too often are pinhole orifices or complete closure of the external os. Some of the published illustrations of the brilliant results of the use of the cautery show a healed cervix but with a canal so small that it is functionless. Such unfortunate results are most likely to follow the use of a round cautery, but may follow a too extensive cauterization with any type of cautery.

The best results and the least danger of bad results are obtained with the small nasal cautery. Even it is not entirely foolproof, but with ordinary care, no damage occurs.

The simple and safe method is to clear the cervical canal with caroid. Introduce the cold cautery a short distance into the cervical canal. Turn on the current and pressing the edge of the cautery lightly into the infected area, slowly withdraw it, cutting a narrow groove through the infected tissues. Make three or four parallel strokes with the cautery. This will be sufficient for one side. Do not cauterize both sides at one sitting. Repeat the cauterization on the other side after an interval of seven to ten days.

The objection to cauterizing both sides at one time is that the opposing raw surfaces may adhere and close the external os. This will not happen often if both sides are treated at the same time, but it will never happen if one side at a time is cauterized.

Some judgment is required as to how deeply into the cervical tissues the cautery should be pressed. The beginner should remember that tissues once destroyed can not be replaced, but should bear in mind that if enough tissue is not destroyed the first time, he can always go back and repeat the cauterization.

In practically all cases, the cervix can be cauterized in the office without an anesthetic. In very rare instances, a local or general anesthetic is necessary.

Practically every physician has electric current in his office. The outfit is not expensive. There is no reason why the general practitioner can not treat these cases successfully with benefit to the patients and to himself.

A commercial diaper service which provides better sterilized garments is growing rapidly, as it saves time and strength of thousands of mothers.--*Hygeia.*

TREATMENT OF MENINGOCOCCIC MENINGITIS

By E. S. BREWSTER, M. D., M. Sc. (Med.)
Elkins, West Virginia

THE weapons available to the modern physician in combating meningococcic meningitis are four in number. They are in the chronological order of their appearance—lumbar puncture, antiserum, antitoxin, and finally sulfanilamide. Many cases of meningococcic meningitis have recently appeared in medical literature where combined antiserum and sulfanilamide therapy had been employed to good advantage. There have been, however, but comparatively few reported instances in which antitoxin, sulfanilamide, and repeated lumbar punctures have been used.

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REPORT OF CASE

History: J. E. R., age four months, male, was admitted to the Elkins City Hospital, May 29, 1938, because of cough, fever, rapid respirations, and poor appetite.

The family, birth, and past histories were irrelevant.

The onset of the present illness began abruptly on the morning of May 28, 1938, with the appearance of fever and cough. That evening his mother noticed that his respirations had increased in rate and that his expirations were grunting in character. No chills or convulsions had been observed by either parent in the interval between onset and hospital admission, but during this period the baby's appetite for his food formula had been poor.

Examination: Examination just before admission revealed a pale, irritable, but well developed and well nourished four months' old male baby. His respirations were rapid, varying from 60 to 72 per minute and the expirations were grunting in type. The heart rate at the apex was approximately 200 beats per minute and the rectal temperature was 102 degrees.

The skin was pale, dry, and warm, and no eruption was noted.

The eyes, ear drums, nose, mouth, and throat were all apparently normal and there was no stiffness of the neck.

Inspection of the chest showed normal respiratory expansion. Percussion, however, revealed a slight impairment posteriorly over the left upper and lower lobes, and breath sounds appeared slightly accentuated over the upper left lobe posteriorly. No râles and no bronchial breathing, however, were heard in these areas.

The heart, except for the tachycardia, was normal.

The abdomen was distended and tympanitic upon percussion.

The weight was 11 pounds, 12 ounces.

Diagnosis: After the admission examination it was thought that the condition was probably early lobar pneumonia involving the left upper lobe and possibly the left lower lobe.

The baby was again seen by me at five p. m. and 10:15 p. m. that day, and on both occasions the chest was normal, although the temperature had risen to 104 degrees at eight p. m. At the 10:15 p. m. examination, the infant appeared to be in considerable pain, the abdomen was a little tense and the eyes were rolled upwards. There was no stiffness of the neck and a definite diagnosis of the condition was impossible at this time. The baby was next visited by me at 8:15 a. m. the following morning when opisthotonos, stiffness of the neck, exaggerated reflexes, and increased irritability were all very prominent. A lumbar puncture was done at 11 a. m. and eight cc. of turbid purulent spinal fluid obtained. A Gram stain smear of the centrifuged sediment of the spinal fluid disclosed a large number of pus cells which contained many Gram negative intracellular diplococci. In view, therefore, of the development of new and pertinent clinical signs and the presence of purulent spinal fluid containing meningococci, the tentative diagnosis of

lobar pneumonia was discarded and the correct diagnosis of meningococcic meningitis was definitely established.

Clinical Course. The first eight days of the infant's illness in the hospital were characterized by a high, though steadily subsiding type of septic temperature, toxemia, prostration, opisthotonos, exaggerated reflexes, and stiffness of the neck. Minor features, during this early period were moderate irritability and slight bulging of the anterior fontanel. This latter condition occurred during the fourth, fifth, and sixth days of the infant's hospital stay and was satisfactorily relieved by repeated lumbar puncture. No convulsions, paralysis, or strabismus were noted.

On June 6, 1938, improvement began and convalescence continued steadily so that he was discharged on June 18, 1938, clinically recovered from his illness.

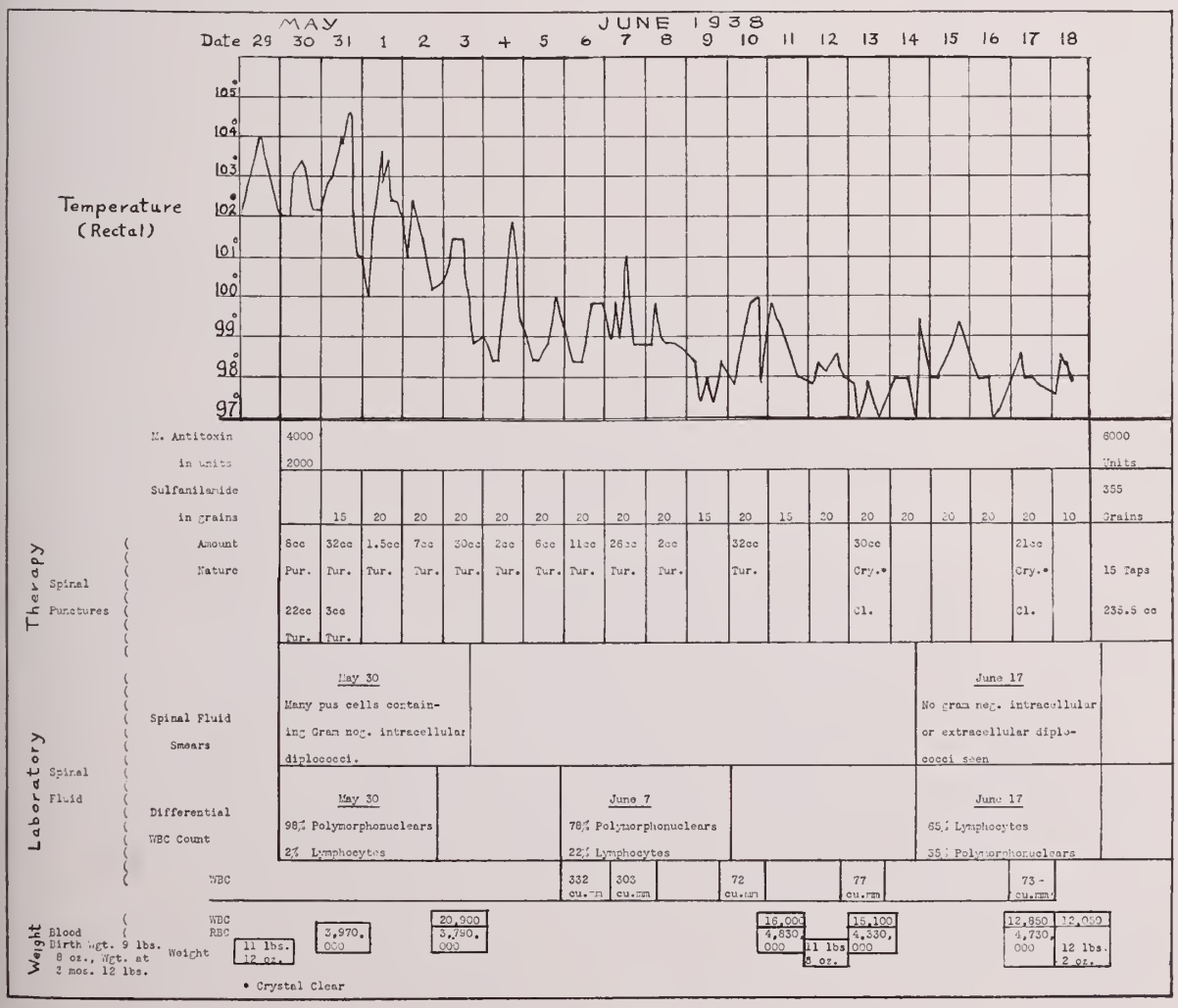
TREATMENT

Meningococcus antitoxin, sulfanilamide, repeated lumbar punctures, and vitamin and iron therapy were all used in the successful treatment of this case.

1. Meningococcus Antitoxin: Four thousand units of meningococcus antitoxin, the first specific form of therapy to be used, was given at four p. m., May 30, 1938, intravenously into the right external jugular vein by means of a hypodermic needle. An additional 2,000 units of antitoxin were administered intravenously by way of the superior longitudinal sinus at 10:50 p. m. that evening following the second lumbar puncture which was done at 10 p. m.

2. Multiple Spinal Canal Drainages: Fifteen lumbar punctures were performed and a total of 235.5 cc. of cerebrospinal fluid evacuated over a period of 20 days. During the interval, May 30 to June 10, 1938, 13 spinal

COURSE IN CASE OF MENINGOCOCCIC MENINGITIS



taps were done to relieve the clinical signs of opisthotonos, stiffness of the neck, exaggerated reflexes, and bulging of the anterior fontanel. During the ensuing convalescent period, two additional lumbar punctures were performed for prognostic reasons only. The spinal fluid was purulent when the first spinal tap was done on May 30, 1938, and subsequent lumbar punctures became progressively less turbid. The fluid was crystal clear in appearance on June 13 and on June 17, 1938, when the fourteenth and fifteenth lumbar punctures were done.

3. Sulfanilamide: A total of 355 grains of sulfanilamide was taken by the patient over a period of 19 days beginning on May 31, 1938 and ending on June 18, 1938. None of the complicating effects of sulfanilamide therapy, fever, rash, cyanosis, jaundice, granulocytopenia, or acute hemolytic anemia were noted in this case.

The average daily dosage was 20 grains, which was decided upon after a study of the table "Suggested Dosage of Sulfanilamide" proposed by Schwentker. The sulfanilamide was made suitable for the baby's use by dissolving one five grain tablet of the drug in one ounce of the formula and then giving this solution to the baby at 10 a. m., four p. m., 10 p. m., and four a. m. intervals between his regular feeding hours. Despite the age of four months and the nature and severity of his illness, the baby was able to take and retain every dose of sulfanilamide.

4. Vitamin and Iron Therapy: This type of therapy was employed purely as a supportive measure. Vitamins A, C, and D were supplied in the diet in the following amounts: five drops of Natola were given in two ounces of orange juice twice daily at eight a. m. and at noon. In addition, five drops of a 10 per cent solution of iron and ammonium citrate were added to the orange juice and Natola mixture.

LABORATORY FINDINGS

Laboratory work was done on the baby's spinal fluid and blood. See chart for particulars.

Follow-Up: The baby returned to see me on June 30, 1938, and examination showed no abnormal neurological signs. His weight was 13 pounds, eight ounces, a gain of one pound, six ounces since the date of his hospital discharge on June 18, 1938.

A second examination on August 8, 1938, revealed no neurological abnormalities and at this time his weight had increased to 15 pounds.

On questioning the parents, I learned that no other cases of meningitis had occurred in their locality between May 29, 1938, and August 3, 1938.

SUMMARY

1. The recovery of a four months' old male infant from the sporadic type of meningococcic meningitis is described.

2. Successful treatment was made possible by a combined meningococcus antitoxin and sulfanilamide therapy with multiple lumbar punctures.

3. Supportive therapy consisted in a continuous supply of vitamins A, C, and D, and iron.

4. The sulfanilamide which was dissolved in the formula was well tolerated by the infant.

5. This case presented the rather unusual feature of imitating pneumonia for two days after onset.

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"CANCER CURES"

The conclusions of a committee of qualified medical experts in New Zealand on their investigation of the "cancer cures" promoted by William F. Koch and Norman Baker, as reported in the *British Medical Journal*, are summarized in an editorial in *The Journal of the American Medical Association* for April 15.

The committee, which apparently conducted the investigation at the request of a Dr. Williams, reported that "Your committee considers that it is in the public interest that a statement be made that our hope of finding anything useful in the treatment recommended by Dr. Williams and his colleagues has proved illusory."

TYPHOID—PARATYPHOID FEVER IN CHILDREN*

By MARCUS E. FARRELL, M. D.
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An apology should probably be made for offering a paper on typhoid-paratyphoid fever due to the fact that so much has been written on this subject. However, a general review from a pediatric viewpoint, may be excused. Sometimes we become rather lax and careless about the diseases of which so much has been written and of which we feel we have a thorough knowledge. This is because we are all anxious to learn something new and are not so interested in going back over old knowledge.

I would like to consider and to stress certain points about the probable incidence of these fevers in children; to emphasize from diagnostic, prognostic and preventative medicine viewpoints the importance of their recognization; to discuss briefly certain diagnostic aids; the differential diagnosis, and the question of relapses. The term "probable incidence" is used because undoubtedly many cases occur—especially paratyphoid fever—that go unrecognized.

INCIDENCE

Typhoid fever has been frequently mentioned as being rare in infants and uncommon in children. This we know is not a true statement. Even with the great reduction of this fever in this country we know that pediatricians certainly cannot agree that it can be placed in the rare or even uncommon class. There are two extremes of typhoid fever in children which are very apt to lead us to error in diagnosis and give perhaps the impression of it being uncommon in infants and children. In infants this disease may give such a severe and obscure picture of illness that we may not think of it in the differential diagnosis. In children there may be such a mild picture of gastroenteritis that we are apt not to consider typhoid as being present.

On the other hand, even by many pediatricians, paratyphoid fever is definitely stated as being rare in children. Many doctors will say they have never seen a case of paratyphoid fever. Perhaps this is because we do not keep in mind the various forms it may assume in children. Professor Langer of Prague classifies paratyphoid in children into four types:

1. The typhoid form with symptoms typical of typhoid fever.
2. The gastrointestinal form with symptoms of pyrexial gastroenteritis, fever, vomiting, diarrhea, abdominal pain, rapid collapse.
3. The dysenteric form with a predominance of symptoms of disease in the large intestine: fever, numerous small mucoid, purulent, or bloody stools with tenesmus, strikingly rapid prostration.
4. Paratyphoid sepsis of the newborn considered to be a diaplacental infection.

I feel that there should be added to this classification a fifth form which is extremely important. It could be made a subdivision of the second form above and consists of a mild gastroenteritis that usually goes unrecognized as being paratyphoid fever. If we are properly to diagnose paratyphoid fever in children we must keep in mind the various forms it may assume.

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*Read before the Pediatric Section, West Virginia State Medical Association, White Sulphur Springs, July 11, 1938.

It is impossible to determine from a statistical viewpoint the incidence of paratyphoid fever in this country. The reports of the notifiable diseases as sent to the United States Public Health Service and made into the yearly national report, do not differentiate between typhoid and paratyphoid fevers in the morbidity and mortality reports. They are received and published under the heading "Typhoid and Paratyphoid Fever." Apparently, therefore, we have no way of knowing from national statistics the incidence of paratyphoid A and paratyphoid B fever. Some states do however differentiate between these fevers, and I feel this should be done nationally. There is no doubt that paratyphoid A is rare in the United States, but there is doubt that paratyphoid B is rare or uncommon.

Table I shows the number of cases of each of these fevers in Massachusetts for each of the past five years.

TABLE 1

	Typhoid	Paratyphoid A	Paratyphoid B
1933	162	0	10
1934	134	1	5
1935	112	0	5
1936	135	2	5
1937	114	1	267

The 267 cases of paratyphoid B fever in Massachusetts in 1937 show how easily epidemics and endemics of paratyphoid may occur. Dr. H. H. Chadwick, State Health Commissioner of Massachusetts pointed out that last year's epidemic of paratyphoid B fever arose from three isolated outbreaks. The first occurred in April in North Boston. The second occurred among students in Simmons College in South Boston who were infected a day or so before school closed. The third outbreak was focused around Deerfield, where a large number of persons were apparently infected as a result of a dinner. Dr. Chadwick in a letter to the editor of the *New England Journal of Medicine* said: "The majority of these cases showed little more than a transient indisposition with or without intestinal disturbance. In these cases the total illness has lasted not more than two or three days, but Widal tests were positive for paratyphoid B and stool cultures showed the persons to be shedding paratyphoid B organisms for a considerable period of time after the cessation of symptoms. In another group of cases there have been no symptoms whatsoever, although paratyphoid B organisms can be isloated from the stool specimens."

Dr. Chadwick continued, "these latter cases, which are so mild, constitute a definite potential menace to the health of the community, as they may be the foci from which the disease may spread. It is extremely important to recognize as many of these as possible lest they infect other members of their families or infest the public while working as food handlers."

In 1936 Petrenko and Sunjuschwa described an epidemic of paratyphoid A among students. Two hundred or 20 per cent of the students were stricken. The cook who had charge of preparation of salads was a paratyphoid A carrier. History revealed that her husband was supposed to have been ill with typhoid fever six weeks previously. Ninety per cent of the students had been immunized against typhoid and 10 per cent had had typhoid. The epidemic terminated following dismissal of the cook.

In 1936 Katz and Damlewskaja (Moscow Medical Institute) reported a study of 3,702 individuals, one-half of whom were restaurant employees and the other half food handlers of the Moscow district. The stools were cultured. Thirty carriers were identified —from whom 37 strains of bacteria were isolated. One was a typhoid carrier; the rest were paratyphoid B carriers.

Several other epidemics of paratyphoid have been reported in the literature as occurring in children.

INTESTINAL FLU

The diagnosis "intestinal flu" is made in numerous cases of vague gastrointestinal symptoms in both adults and children. In the summer dysentery is a very frequent diagnosis on children who have fever and gastrointestinal symptoms, and no doubt usually a correct one. However, there is a good pos-

sibility that some of these cases of so-called "intestinal flu" and even some of the cases diagnosed as dysentery, without any laboratory studies, may be paratyphoid fever. This can of course be proven by blood culture, Widal reactions, and stool and urine cultures. I keep stressing the fact of paratyphoid fever, leaving out typhoid fever, because I feel that typhoid fever is not so easily misdiagnosed as paratyphoid fever.

CORRECT DIAGNOSIS IMPORTANT

What difference does it make whether we go to the trouble of attempting to diagnose paratyphoid fever in a child who has a mild intestinal infection and who is getting along very well without toxicity? Why not call it "intestinal flu"? Certainly that is the easiest thing to do. The reasons for the importance of such recognition of the true cases of paratyphoid fever are of course obvious as Chadwick so well pointed out. The public health and preventative medicine viewpoints in themselves are tremendously important. Any intestinal infection which is transmissible and contagious is a menace to the public health. Even with the best of public health measures in this country, epidemics of infectious intestinal diseases, are always potentially with us. We found that very clearly a fact a few years ago in Chicago. Only a relatively few ever suspected the danger of an amebic dysentery epidemic in this country.

The Journal of the American Medical Association in a recent editorial pointed out how easily typhoid fever may become rapidly and widely disseminated today from a small focus because of new methods of transportation.

Another important reason for the necessity of more thorough study of intestinal infections is of course from prognostic and therapeutic viewpoints in typhoid-paratyphoid fever. It is true that ordinarily these diseases are mild in children and their mortality is low. However, one needs but to review the possible complications to realize the importance of recognition. Gastrointestinal symptoms are so common in children that we hesitate to go out of the "green apple belly-ache" or "intestinal flu" diagnosis. We certainly cannot be taking blood cultures, Widals and stool and urine cultures on all of these numerous cases. Many of these cases do, however, deserve more careful laboratory studies, especially if the symptoms last over the three or four day usual period. We must keep in mind that in the so-called short duration form of typhoid and paratyphoid fevers the duration varies from a few days to approximately two weeks, or the symptoms may be so mild that they are ignored by the patient, as were some of those cases in Massachusetts last year. Such cases are a greater menace to the health of a community than the clinically typical case.

With more accurate diagnosis, keeping the possibility of typhoid and paratyphoid fevers in mind, and with more accurate reporting of these cases the statistics on these infections would show an increase. In other words, is there not a good possibility that paratyphoid B fever is occurring more frequently than we suspect? If we become typhoid-paratyphoid conscious it is probable that the true incidence of this disease in children will be found much higher than the present statistical reports indicate.

DIAGNOSIS

To my mind there is nothing in pediatrics more interesting than seeing in consultation a child who has presented a bizarre picture of perhaps only continued fever and abdominal distention and making a tentative diagnosis of typhoid fever. The family physician is greatly relieved, the family is at first frightened and then relieved at hearing something definite and the pediatrician is on the spot. The 24 hours that is necessary for confirmation from the laboratory makes a long day. The important differential diagnosis and responsibility assumed by the pediatrician in the early cases is differentiating between an acute surgical and non-surgical abdomen. The two common surgical possibilities are, of course, appendicitis and intestinal obstruction. Griffith and Mitchell in their text-book of pediatrics

do not mention appendicitis in the differential diagnosis of typhoid fever. Perhaps they do not feel that these diseases should be confusing. In some early cases I think they may be quite confusing and a correct diagnosis is extremely important. Coleman, in Nelson's Medicine, in discussing the differential diagnosis of typhoid fever, states, "so many cases of typhoid fever begin with such typical signs of appendicitis they merit designation as a special form of typhoid fever—the appendicitis form." He also says, "cases of appendicitis are occasionally also mistaken for typhoid fever. There are cases in which the more acute symptoms have subsided and abscess formation has taken place." I well remember such a case in a 11 year old girl while I was interning. I was indeed proud of making a diagnosis of typhoid fever from a positive Widal. We treated her for three weeks for typhoid fever and autopsy showed a ruptured appendix with multiple abscesses and generalized peritonitis.

AID OF LABORATORY

The aid of the laboratory in diagnosis is noteworthy. Often, however, unless we are careful as to the type of laboratory studies we order and unless we are thoroughly familiar with the interpretation of the laboratory findings, we may be misled as to the true diagnosis. It has been pointed out countless times that early in the disease the blood culture is positive in at least 90 per cent of the cases and we must make use of it for early diagnosis. Laybourn recently stressed the value of the blood culture as the procedure of choice in the early laboratory diagnosis of typhoid. The three important facts that he cited are:

1. The typhoid bacillus can be isolated from the blood stream in practically all cases during the first few days of the illness when the establishment of a definite diagnosis is of the most importance.

2. Blood culture gives more definite and conclusive evidence than is obtained from the Widal test, since the isolation and identification of the typhoid bacillus leaves little room for doubt as to the cause of illness.

3. Most important, so far as the prevention of the spread of typhoid is concerned, the bacilli can be isolated from the blood stream in mild and abortive cases of the disease in which there might otherwise be little suspicion of a typhoid infection because of prompt recovery or atypical symptoms.

WIDAL AGGLUTINATION TEST

The Widal agglutination test is undoubtedly a valuable aid but its accuracy and interpretation may lead to numerous errors. Many practitioners still diagnose the presence or absence of typhoid-paratyphoid fever on one Widal test, done early or late in the disease. The important facts to remember about the Widal test are as follows:

1. It ordinarily does not become positive until around the tenth day of the disease, and it may not appear until convalescence or until a relapse. Dietrich found only 60 per cent of his cases gave a positive Widal at the end of two weeks.

2. Repeated examinations may be necessary before a positive result is obtained.

3. It may be positive from a previous prophylactic inoculation or from a previous typhoid or paratyphoid infection.

4. The agglutination titre produced by inoculation remains more or less stationary. A rising or falling titre indicates active or recent infection.

5. Careful history and physical observation must be taken before making a diagnosis on a positive Widal alone.

6. A diagnosis of typhoid-paratyphoid fever should not be abandoned because the Widal is negative. The test should be repeated later.

The leucopenia so often stressed as a laboratory aid to diagnosis may also be either an aid or an obstacle in making a diagnosis. Dietrich last year pointed out that in children the white cell count may be high during the early stage of the disease. Ordinarily the leucopenia does not develop until the second week of the disease. The lymphocytes increase and the polymorphonuclears decrease. The white cell count must not be given too

great a significance in differential diagnosis and must only be considered as one small factor along with the clinical signs and symptoms and other laboratory studies.

RELAPSES

The question of frequency and cause of relapses is an interesting one. Davisson states that relapses in children in typhoid-paratyphoid fever are rare. This is questionable. Certainly they are not common, but they do occur in a fair percentage of cases. Other authors state that relapses are more frequent in younger patients and after mild attacks. Concerning relapses in this disease in children, Langer states, "the tendency to relapses varies greatly so that certain authors designate typhoid sequelæ as very rare and others again find them rather common." Many theories have been given for their causation. Probably there are various types of so-called relapses. There is no doubt that excitement, errors in diet and other benign factors may give a rise of temperature and an increase of symptoms during convalescence. The serious relapses however, in which the typical clinical picture again returns, are probably due to temporarily lowered immunity. The differentiation between true and false relapse in an individual case is important. So often a case has been successfully taken care of in the hospital without complications; is not taken home until several days with normal temperature; get along well for a few days and then while still in bed suddenly develops a temperature. Again, in our differential diagnosis, we must be extremely careful to determine whether we have to deal with a false or true relapse, whether it is an infection with one of the other members of the typhoid-paratyphoid group, or whether something new is occurring.

The possibility of relapses or infections with others of the typhoid-paratyphoid group after the convalescent stage is apparently over is one that makes good speculation. This is perhaps especially true of paratyphoid fever for the bacteriology of the paratyphoid problem requires still further study.

In taking histories we often hear of patients having had two, three, or four attacks of "intestinal flu" within three or four months. These patients have usually had no laboratory studies to determine the exact bacterial etiology of their intestinal infection. In the past few months I have studied three different children with such a history, previous to their present attack. Laboratory studies definitely proved that in the present attack at least, they had paratyphoid B fever. This leads to the thought as to whether their previous attacks were not also caused by this group of bacilli.

We are familiar with the type of relapse present in undulant fever and amebic dysentery. Portis very recently pointed out that recurrent diarrheas may be due to bacillary dysentery organisms. He thought that his data was suggestive that B dysenteriæ may infect a patient and later lead to recurrent diarrhea. He explained that the modus operandi of the clinical picture may be related to an allergic manifestation in which a sensitized intestine reacts to the antigen of the organism. The paroxysmal attack, according to Portis, may resemble other bacterial allergic phases or it may resemble Schwartzman's phenomenon. I wonder if such may not be possible with paratyphoid fever.

PROPHYLAXIS

The marvelous advances made in this country in the public health measures and prophylaxis against typhoid-paratyphoid fever have been indeed amazing. However, I feel that the public health departments and the medical profession are becoming perhaps a little careless. Education of the public has been somewhat neglected lately, and perhaps especially as far as children are concerned. For instance, I recently had a case of typhoid fever in a 11 year old boy who for the three weeks before the onset had been living at a summer cottage near a lake. The water supply, of course, was from individual wells. The usual large number of children live or visit at this lake during the spring and summer months. Investigation revealed that a very negligible percentage of these children

had had typhoid-paratyphoid vaccine. Often, too, in those who have received prophylaxis, repetition of the vaccination is but seldom done or advised. Many are living under a false sense of security. Many reports occur in the literature of the occurrence of typhoid-paratyphoid fever after vaccination. The United States Army does not include paratyphoid organisms in their vaccine. This was done because of the supposedly low incidence of paratyphoid infection in this country and to make a vaccine causing less severe reactions. I question the wisdom of the omission of paratyphoid B organisms. Three years ago I observed eight proven cases of paratyphoid B fever in a CCC camp in boys who had received the typhoid vaccine.

If the work being done in finding a skin test for susceptibility to typhoid-paratyphoid fever is successful, there will be a great additional aid in the preventative medicine aspects.

SUMMARY AND CONCLUSIONS

1. If we should become more typhoid-paratyphoid conscious in obscure infections and gastrointestinal infections in children, there would undoubtedly be an increase in the reported incidence of these fevers.

2. The possibility of paratyphoid B fever being more common than we are led to believe from the reported incidence and the importance of its recognition is presented.

3. More frequent and more accurate laboratory studies in gastrointestinal infections in children should be done.

4. The possibility of repeated relapses or recurrence of symptoms in paratyphoid fever is considered.

5. Increased public health education especially as pertaining to children in prophylaxis of typhoid-paratyphoid fever is necessary.

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EXCESS WEIGHT

Because excess weight leads to crippled functioning of several essential organs of the body, fat people neither feel as well nor live as long as slender people or those of average weight, Lemuel C. McGee, M.D., Elkins, W. Va., says in *Hygeia, the Health Magazine* for May.

"The actuality of a shorter life is well established from careful studies," Dr. McGee points out. "The Actuarial Society of America has found that at age 55, 20 per cent overweight means 20 per cent higher mortality and 40 per cent overweight brings 65 per cent higher mortality.

"In long standing obesity there is an infiltration of fat into most of the body organs, particularly into the heart and blood vessels. In both of these places, the fat seriously hinders a vital function. For this reason the death rate from circulatory disease is two and a half times as great in people overweight as in people with normal weight.

"Many of these needless deaths are associated with high blood pressure, for this degeneration becomes more dangerous under the strain created by the fat.

"Excess fat is considered by one authority to be the most important single cause of diabetes. Fat people are unduly susceptible to diseases of the liver and gall-bladder, they suffer excessively from heat and they are less resistant to bacterial infections than others. The risk of a major operation to the life of a fat man is alarming."

MIGRAINE: A PITUITARY STUDY*

By R. O. HALLORAN, M. D.
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THE advent of ergotamine tartrate (gynergen), in the treatment of migraine has opened a new avenue of investigation into the mechanism of this age old syndrome. For sometime it has been known that pituitrin and ergot have had in some cases a specific action in alleviating the intensity of the migraine headache but no satisfactory explanation was ever given to account for their effectiveness. Now that it has been discovered that gynergen and ergotrate, have almost specific migraine relieving actions it seems highly probable that the key to the causation of this peculiar syndrome will be found in the study of the pharmacologic study of these drugs. Since the one common action of each is that of direct smooth muscle stimulation (blood vessels, uterus, etc.), then it becomes highly probable that it is through vasoconstriction that relief is obtained in migraine. This is wholly in variance ot present day theories of migraine which hold there is an intense vasospasm during an attack. The author does not feel that vasoconstriction is present but conversely that the opposite condition exists, namely, vascular congestion. With this thought in mind the following rather simple theory of migraine is proposed, namely, that it is due to engorgement of the venous sinuses of the skull brought on either by obstruction or compression along the venous system or by increase of blood flow to the cranium through physical exertion or quickening of the pulse, excitement, anxiety, fright, etc.)

In an examination of twelve human cadaver heads the author is convinced that swelling of the pituitary is the chief cause of migraine simply through its mechanical action. Examination of the pituitary bodies in these twelve adult cadavers revealed with but one exception, in the case of an old man, that the pituitary gland completely fills the sella turcica and cannot swell physiologically (as all endocrines apparently do when called upon by other glands in the chain), without compressing to a certain extent the cavernous sinuses that lie on each side of the gland. Since the dural sinuses are tough fibrous reflections of dura they are compressible but not expansible. Hence it becomes evident that they cannot tolerate any compression that would tend to decrease their rather fixed "vital" capacity as this would disturb the hydraulic equation of the cranium which is briefly that the outflow of blood must at all times be equal to or greater than the inflow. When this equation is reversed as it probably is in migraine, then engorgement ensues and headache occurs through pressure on the pain papilla in the walls of the dural vessels. Let it be stated at this point that the dural sinuses are not veins. They are devoid of any muscle tissue whatsoever and are consequently unreactive to vasoconstricting drugs. The fact that at the onset of a migraine attack the distribution of pain is along the large venous sinuses is objective evidence in support of the above theory. Usually the pain starts behind one or both eyes and through the temples. This area corresponds to the pituitary gland and the cavernous sinus of the respective side.

As to the many components of migraine a mechanical explanation may be given to each. Aura may be produced through congestion of

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the retina since the superior ophthalmic vein which drains the retina leads directly into the cavernous sinus and this vein would be the first to register a disturbance at the beginning of pituitary compression on the sinus. Hemicrania may be due to one lateral pole of the pituitary swelling more than the other, hence, compression symptoms may thus start on either side since the sinuses at the base of the skull are two separate systems. Optic disturbances are explainable through the mechanism of upward pituitary compression on the chiasm which lies directly above and slightly anterior to the gland. Oculomotor disturbances may be pressure phenomena due to the fact that the third nerve runs along the outer wall of the cavernous sinus and receives the same pressure effect as is directed to other nerve structures. Auditory aura is perhaps entirely congestive in origin. Throbbing is explainable by pressure on the internal carotid artery which courses up through the cavernous sinus and in so doing lies directly against the pituitary gland. This sensation is analagous to that which one experiences when a blood pressure cuff is allowed to remain on the arm unduly long. The soreness and tenderness of the skull and scalp are due to engorgement of the diploe and congestion of the small emissary veins which attempt to unload the internal venous pressure. This is particularly noted in the mastoid region. Dark circles about the eyes especially in women is but another evidence of venous unloading from within the skull as the inferior ophthalmic veins which drain structures about the orbits communicate directly with the cavernous sinuses and anastamose with plexuses of veins in the face. This creates a sluggish facial circulation which gives the complexion a pasty, sallow look and creates a fertile soil for acne which frequently displays itself at menstrual time when headaches and migraine are common. It may be said here that it is highly probable many of the common headaches are but mild attacks of migraine. In other words only some people have migraine due to the peculiar structure and relation of the sella turcica to the cavernous sinuses. In a comparative anatomy study of the rabbit, ground-hog, fox, alligator, elephant and gorilla the author found that as the occipito-mental diameter of the skull decreases the pituitary fossa becomes increasingly compressed from before backwards. Thus in man the fossa does not permit of such pituitary fluctuation and many vital structures are thereby disturbed.

OTHER COMPONENTS

Other components of migraine which are of especial importance are nausea and vomiting and the intense depression that usually follows an attack. The former may be explained by the increase of intracranial pressure which takes place immediately at the onset of an attack. The vomiting is purely a reflex to relieve this pressure. The increase of pressure may at first give the patient a sense of euphoria as is often seen in patients with brain tumor, but this is rare. More often acute nausea and vomiting set in rapidly. The depression, however, is an entirely different phenomenon. It is due to accumulation of metabolities ("brain carbon") in the sensorium brought on by faulty combustion (anoxemia) through sluggish venous return. This accumulation of "carbon" clogs the mental cylinders producing irritability and paresthesias commonly known as the "jitters." It is interesting to note that there is only a relative difference between the headache and hangover of migraine and that resulting from alcohol. The probable explanation for the latter is that alcohol produces congestion of the pituitary gland with ensuing venous compression. Regardless of the theoretical aspect the author has found gynergen very useful in treating "hang-overs" and delirium tremens.

Two additional factors in the venous arrangement of the skull which aggravate the congestive mechanism are, first, that tributaries to the superior sagittal sinus empty into the latter sinus against the direction of flow, and secondly, the lateral sinuses have an acute angulation in them as they pass through the jugular foramina. This latter condition no

doubt becomes a hindrance to the free exit of blood from the skull.

The periodic attacks of migraine are in keeping with the periodic fluctuations of the pituitary. Menstruation makes demands upon the gland which entails swelling with ensuing headache. Loss of ovarian function either by degeneration, functional depression, or surgical extirpation of one or both ovaries creates a break in the endocrine chain frequently evidenced by overactivity of the pituitary. Hence the increased incidence of migraine attacks in such individuals. So-called "vagatonia" is often associated with migraine and hypothyroidism is often associated with vagatonia. So by the same equation hypothyroidism and migraine frequently occur together. Hence it is logical to assume that chronic enlargement of the thyroid may have its counterpart in a chronically enlarged pituitary. In other words one may have a "goitrous" pituitary. This may explain why some patients improve under Lugol's solution when there is apparently no excess enlargement of the thyroid. The goitrous pituitary may have decreased under the influence of iodine. This is not at all unreasonable inasmuch as some cells in the pituitary closely resemble thyroid cells.

There are many cases of migraine due to allergy. The author feels that explanation of this may lie in the fact that the anterior lobe of the pituitary is derived from the pouch of Rathke from which nasal mucosa is derived. That the latter is notoriously allergic is a matter of common knowledge. Hence it is not unlikely that the anterior lobe is an allergic shock tissue and responds to allergens by swelling.

CONTRIBUTING FACTORS

Other contributing factors to migraine are eyestrain, worry, anxiety, general ill health, sexual overindulgence and toxins of constipation. Each in its way either creates venous congestion or swelling of the pituitary.

Now how does gynergen relieve migraine? The most simple explanation is that through its vasoconstriction action the vascular bed of the brain and skull are diminished and the sinuses have an opportunity to unload. Thus the hydraulic equation mentioned at the outset rights itself and the inflowing blood volume becomes less than the outflowing volume. However, shortly after administration of the drug there is an intensification of the headache. This is obviously due to the sudden vasospasm which throws a temporarily greater load on the sinuses. However, with the decrease in arterial volume this extra load is soon dissipated and the headache relieved.

Estrone, corpus luteum, whole ovary extract and even adrenal cortex are beneficial in a prophylactic manner due to the fact that they are pituitary depressants. Antuitrins is also helpful by its substitutive action.

TREATMENT

Every case of migraine should be individualized. In the majority of cases a combination of therapies is more effective than any one procedure. In each instance the patient's general health should receive the utmost attention. Thin patients should be made to gain weight by taking cod liver oil and vitamin B preparations. A basal metabolism test is frequently indicated and judicious treatment directed toward the thyroid. Hemoglobin estimations should be made and proper therapy instituted if indicated. Neurasthenic patients with low blood pressures are often mild cases of adrenal cortex depletion and make splendid improvement on eschatin and high chloride intake. The latter may occasion a desire for large amounts of water which is unfortunately contraindicated in migraine. If thirst is aggravated by the chlorides they may be left off. It is interesting to note that water in addition to aggravating migraine will also precipitate an attack of epilepsy. This makes it highly probable that migraine and epilepsy are one and the same condition basically but differ in their components which are sensory in one and motor in the other. It is further interesting to note that eclampsia is but a combination of migraine and epilepsy. In the author's opinion this latter syndrome is pituitary in origin and that the so-called "toxin" of eclampsia is pituitrin.

Estrone, corpus luteum, adrenal cortex and antuitrins should be given as indicated and often must be continued for several months before benefit is noted. Errors of refraction should be corrected as far as possible but refractions should not be made shortly after an attack or while the patient is menstruating. Where there seems to be an allergic history appropriate studies should be made, preferably by one doing a good bit of allergic work as such studies need a very critical evaluation.

USE OF GYNERGEN

For the immediate attack gynergen should be given as soon as possible, preferably one-half cc. of the solution hypodermcially repeated in one-half to one hour if necessary. Sometimes this relieves the headache for a time when it begins again and further injections become necessary. It is perhaps unwise and unnecessary to give over two cc. in divided doses in any one 24 hour period. This drug should never be used in tablet form by patients daily in an effort to keep from having attacks as the danger of ergotism is obvious. It should be used with caution in patients with coronary disease or angina pectoris. Of course it is obviously contraindicated in pregnancy. This drug nearly always relieves or at least lessens the period of incapacity following an attack. The depressed, "washed-out" feeling of these patients is considerably relieved and for this reason it is highly probable that many of the functional mental ills such as dementia praecox, manias, melancholia, and suicidal tendencies may respond to the judicious use of this drug. If the depression in migraine is due to anoxemia of the brain with accumulation of metabolities ("brain carbon") then it becomes highly probable that we may have a new clue as to the causation of these obscure mental conditions. This is especially feasible when we consider that we have dementia praecox in adolescence when the pituitary is over active and also have lactation and menopausal melancholias at a time when the pituitary is in a state of imbalance. Further studies in the use of gynergen and oxygen inhalations in the psychoses are definitely indicated.

SUMMARY

The author proposes that migraine is due to swelling of the pituitary gland which creates compression of the cavernous sinuses resulting in congestion of the whole venous system of the skull. Pressure on the pain papilla within the walls of the dural sinuses creates the headaches. The various components of migraine are thought to be pressure phenomena having their origin in the nerve structures in and about the cavernous sinuses and sella turcica. It is further proposed that gynergen decreases the vascular bed of the skull and brain which in turn relieves the congestion and headache. The depression following migraine is thought to be due to accumulation of metabolities in the sensorium. Thus many mental states may be due to anoxemia of the brain. Further studies are indicated in the use of gynergen and oxygen in the treatment of mental ills, acute alcoholism and delirium tremens. A close analogy is suggested between migraine, epilepsy and eclampsia.

PENDULAR ARM MOVEMENT

A decrease or absence in one arm of the swinging movement in walking may be an early sign of disease of the cerebellum or small brain, Robert Wartenberg, M.D., San Francisco, says in *The Journal of the American Medical Association* for April 15.

Pointing out that such pendular movement has frequently been found reduced or absent in patients with disease of the conelike portion of the lower part of the brain, Dr. Wartenberg declares that this symptom may also indicate involvement of the cerebellum. In such cases the cerebellum is involved by disease on the same side that the arm-swing action is absent.

The importance of this sign lies in the fact that it is easily detectable and can hardly be simulated.

It is the author's definite impression that in disease of the cerebellum the pendular movement is influenced earlier and more pronouncedly than it is in cerebral disorder.

Tuberculosis Abstracts

Furnished Through the Courtesy of the West Virginia Tuberculosis Association

When the practitioner sends a sputum specimen to the laboratory he expects usually to learn only whether or not tubercle bacilli are present. Much more can be learned by a careful study of the sputum. Dr. S. Roodhouse Gloyne, pathologist at the London Chest Hospital, whose work has attracted widespread attention, has prepared this article especially for "Tuberculosis Abstracts."

THE CYTOLOGY OF SPUTUM

We are all apt to assume that everything that goes into a sputum flask is sputum. Saliva, postnasal and pharyngeal secretions which have trickled down the throat, even gastric contents resulting from retching may be confused with true sputum. The word will be taken here to mean the material which coughing ejects from the respiratory passages. Cytological examination often enables us to determine (a) from what part of the respiratory tract the secretion comes and (b) what its nature is.

Specimens should be as fresh as possible, because cells degenerate more quickly than bacteria and a stale specimen is valueless for cytological purposes. The next thing is to select suitable portions for examination. There is only one safe rule, viz., to select every portion which looks different in appearance from any other portion—mucoid, purulent, pigmented, blood stained, gelatinous, etc. The purulent portion is the least useful. The specimen may be poured into a wide dish (e.g. an ordinary bacteriological petri-dish) and placed on a light or dark background as required. It is not enough to take a wild plunge at an evil-smelling specimen with a platinum loop and to trust to luck. Each portion should be picked out with sterile forceps, and placed upon one end of a slide. A thin film is then made with the edge of another slide in the same way that one spreads a blood film for malaria parasites. In selecting the portions it is a good plan to go over the specimen carefully first with a hand lens. The technique used by the writer for staining films is a modification of that of Dudgeon and Wrigley:—(1) Fix wet films in Schaudinn's solution (absolute alcohol, one part, saturated aqueous solution of perchloride of mercury, two parts, with three per cent acetic acid added immediately before use) for five minutes. (2) Pour off fixative and cover with 0.5 per cent iodine in 70 per cent alcohol for two to three minutes. (3) Drain off this solution and cover with the following solution for two to three minutes: Sodium thiosulphate, 7.5 gm.; 96 per cent alcohol, 100 c.c.; distilled water, 450 c.c. (4) Wash and stain with undiluted Delafield's hematoxylin for two to three minutes. (5) Pour off stain and differentiate with 1.0 per cent hydrochloric acid. (6) Counterstain with Biebrich's scarlet or orange G. (7) Dehydrate with absolute alcohol, clear with xylol and mount in neutral balsam.

The cells encountered may be classified into three groups (1) cells which have migrated from the blood stream; (2) tissue cells from various portions of the respiratory tract; (3) abnormal cells resulting from various types of growth.

The cells of the first group are leucocytes and erythrocytes and they are found in practically all sputa. The neutrophil polymorphonuclear cell is an essential part of the tissue response in all suppurative diseases of the lung. It is fundamentally a phagocyte and frequently contains organisms. After lipiodol administration it will show engulfed oil droplets also. The predominance of the lymphocyte, which is such a useful diagnostic sign of tuberculosis in other exudates, is in the writer's view quite valueless in sputum. Lastly there is the eosinophil cell commonly found in asthma. Of the tissue cells, the most common is the transitional squamous cell which covers the anterior surface of the epiglottis, the upper half of the posterior surface, the aryo-epiglottic folds and vocal cords and the pharynx. This cell is generally found in association with large numbers of the organisms of the catarrhal infections. A cytological picture of this kind is common in the chronic catarrhs of the winter months. The ciliated columnar cell of the epithelium of the respiratory tract extends from the trachea down to the small bronchi and may desquamate and appear in the sputum when the mucosa is ulcerated. It is often seen after the passage of a bronchoscope. The lining cells of the respiratory bronchioles and alveolar ducts are of a low cuboidal non-ciliated type and they are not easy to distinguish from other mononuclear cells in sputum unless they are adhering together in plaques. None of the cells in this group is a phagocyte. There is, however, a cell, conveniently considered here, which does phagocyte, i. e. the macrophage. It masquerades under many names, the heart failure cell, the dust cell,

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President's Page

The report of the "Low Cost Study Committee" has been made to the Council and has been referred to the House of Delegates for final action. Much credit should go to this committee for days and weeks of study and deliberation on this important problem. Many plans have been investigated, protection offered by the different insurance companies has been considered and the progress of existing hospital plans examined. The Council has authorized a meeting of the presidents and secretaries of the county societies at which time the committee's report will be explained, discussed, and questions answered, so that each society will be fully informed on all points.

Unfortunately, rumors have been spread through part of the state to the effect that some state-wide plan is to be immediately started. I wish to assure you that neither the committee nor myself has the authority or the desire to make any such decision, or start such a tremendous undertaking.

There is a definite demand from the public, industry and labor, and even much discussion by the government, for some distribution of the cost of hospital and medical care for the low wage earner. This is not new, but has been going on for many years, as evidenced by the existence of coal mine list work and other contract practice. This type of practice by groups and individuals is increasing and will continue to increase unless something better is offered.

The principle of distribution of this cost by prepayment insurance is probably the best solution and if the problem can be solved by giving the patient adequate care, and at the same time assure fair play by allowing them the right to choose hospital and physician, the effort spent will have been worthwhile.

Ray M. Bobbitt

President.

West Virginia Medical Journal

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PREFIX POINTERS

During the past month numerous inquiries have been received relative to interpreting the "Prefix Doctor Bill" enacted by the recent session of the legislature, which becomes effective on June 6, 1939. The bill provides that no person may use the prefix "Doctor" or "Dr." in any sign, professional card, stationery or public display without adding suitable words or letters to indicate the degree held. As most of the questions and answers are of interest to the entire profession, we give below a resume of the questions which have been asked and the answers prepared by our Association attorney.

Q.—Dr. John Doe and Richard Roe are associated together. Their joint stationery is headed "Drs. Doe and Roe." At one side of the top of the stationery is found "John Doe, M. D." and "Richard Roe, M. D." Can this stationery be used under the new law.

A.—Yes. If only the heading were used, the stationery would not conform to the statute.

Q.—The envelopes used by the two doctors has a return address reading "Drs. Doe and Roe, Medical Building, Mullens, W. Va." What about it?

A.—The envelopes may not be used unless the letters "M. D." are used after the line reading "Drs. Doe and Roe." The degree letters may be written in ink on each envelope as they are used.

Q.—On the outside of the reception room door the names of the two doctors appear "John Doe, M. D." and "Richard Roe, M. D." However, on the doors to the private offices which leads off from the reception room their names are painted "Dr. Doe" and "Dr. Roe." Will this pass muster.

A.—Yes. The correct use of the degree initials on the outside reception door takes care of the entire situation.

Q.—Dr. Doe has just recently paid for a new check book and the checks are lettered "Dr. John Doe." Should he throw away his new check book and have a new one made up reading "John Doe, M. D."

A.—No. A check is not a public display. It is suggested, however, that when Dr. Doe's new check book is exhausted, he have his next book of checks made up with the degree initials for the sake of uniformity.

Q.—Dr. Roe has on hand some personal stationery of his own with the heading "Dr. Richard Roe." May he use this stationery if he signs his letters "Richard Roe, M. D."

A.—Yes. Here it is also suggested that when Dr. Roe orders new stationery he should use the degree initials in the heading in order to conform with standard usage.

Q.—We have pointed out that Dr. Doe's reception room door sign reads "John Doe, M. D." On his office window, which faces the street, his sign reads "Doctor Doe." Should this be changed.

A.—Yes. The window sign must read either "Dr. Doe, M. D." or "John Doe, M. D."

Q.—What is the purpose of the new law.

A.—Public protection. The public is entitled to know whether a doctor is a regularly licensed Doctor of Medicine, an osteopath, chiropractor, chiropodist, optometrist or Indian medicine man.

POSTGRADUATE EDUCATION

At the recent meeting of the American College of Physicians in New Orleans there was much discussion of postgraduate medical instruction and after listening to the factual

data presented and to every variety of opinion as to needs, methods and values, we are convinced that with all efforts heretofore made and despite much progress, the status of the subject is as yet rather nebulous, or at best unstable, and there is great need of further study, better organization and more harmonious development of the whole subject.

In a consideration of this subject, the first basal fact to remember is that education is a continuous and a continuing process and extends over the entire lifetime of the individual. In a manner the acquisition of a diploma closes the "preface" rather than writes "finis" to the entire volume. A second basal fact, just as important as the first, is that medicine, since the dawn of history dynamic, is more so today than ever before, and as a consequence the sum total of medical knowledge is increasing more rapidly now than at any time in the past. Parenthetically we venture the prediction that the speed of accumulation of medical knowledge will be definitely accelerated in the future. A third basal factor which cannot be ignored but which was accorded only scant mention during the New Orleans discussion is the distribution of the present available supply of postgraduate education. By and large the public has a vast but unappreciated interest in the subject. We cannot blind ourselves to the fact that the supply is distributed best where it is needed least. The more carefully we contemplate this phase the more we are forced to the conclusion that, mathematically speaking, the distribution of postgraduate medical education varies inversely as its need. In other words, there is a submerged or partly submerged segment of the medical profession to which postgraduate instruction and scientific progress filters down rather slowly and considerably dilute.

Among the means of distribution of postgraduate instruction to physicians may be listed:

1. Personal contacts.
2. Medical societies.
3. Medical publications.
   (a) Periodicals.
   (b) Books.
4. Organized postgraduate instruction.
   (a) Interneships.
   (b) Fellowships.
   (c) Organized courses of instruction in legally constituted medical educational institutions.

Of these we do not consider the personal contact of physician with physician by any means the least important. Off hand, we do not recall having sat in on a single professional consultation or having ever "talked shop" with a doctor of medicine when we did not learn something or at least gain additional light on some item of professional knowledge with which we were already acquainted. Doubtless, moreover, every practicing doctor remembers information acquired at medical meetings by "hobnobbing with the fellows" about their work. Truly "touching elbows" with our confreres is a very valuable part of our postgraduate education.

Medical societies of course constitute a very important segment of distribution of medical progress. Of these we hold the county or local society as of greatest importance, but here the weak spot is, as is true of the entire subject of postgraduate instruction, "he who need it most gets it least." The various study clubs are well worthwhile but the members of these organizations are essentially forward-looking and progressive, else they would not hold membership in such organizations.

Of the publications the periodicals are a much more important link in the chain of distribution than are books. The journal diffuses knowledge much more rapidly than the bound volume. In this connection we recall the statement of one of our instructors years ago in medical school: "It takes ten years to get a statement into a text-book and twenty to get one out." In other words, the text-book in postgraduate medical education tends to be static rather than dynamic.

The organized postgraduate instruction of most moment to the recent graduate is, of

course, the hospital training period which is divided into the interneship and the fellowship, the former touching a much larger proportion of the stream of new blood now being infused into the profession. This is partly due to the fact that nearly half the states require a year's interneship prior to licensure, and so rapidly has this requirement been adopted that the near future will probably see it in every state, either by legislative enactment or as a regulation of the licensing board. We feel that while the council-approved interneships are fairly well standardized and the training afforded is generally satisfactory there is probably room for improvement. We are at times led to wonder, as was so aptly expressed by a speaker at New Orleans, "whether the interne always gets his money's worth or not." Stated differently, there is a possibility that the interne, at least in some localities, is looked upon as a superorderly or a glorified clinical clerk rather than as a physician practicing under the supervision of an elder confrere who is presumably wiser and has at least lived longer in the profession and is accordingly more experienced in actual medical practice. The available fellowships are probably on a better organized basis, generally speaking, than are the interneships although they touch a much smaller proportion of the total volume of recent graduates than do the interneships. Moreover, the fellowship usually leads to specialization rather than to general practice, that large segment of the professsion responsible for an enormous volume of medical work and in which the need for postgraduate instruction is most acute.

The regularly organized courses of instruction for graduates in medicine now offered in legally constituted medical educational institutions are apparently doing very satisfactory work, but here again they benefit least those whose need is greatest, and they tend to specialization rather than generalization.

What proportion of the medical profession makes use of available postgraduate opportunities? We do not have data at hand to give a complete answer. However, we have the impresssion that it is much smaller than might be. In the local societies, (which designation we may broaden to include the hospital staff), the membership almost never includes all availables and as far as our observation has gone the percentage of attendance rarely goes above fifty, and those who do attend are fairly constant in attendance. Twenty-five per cent of the membership is an extremely large attendance at any one annual meeting of a state society. The more highly specialized societies probably have a better percentage of attendance, and our observation leads us to believe that the more highly specialized the society, the greater is the percentage of attendance upon its meetings.

How many physicians get appropriate medical journals? Take West Virginia for example. The three journals most appropriate for the general practitioner in this state we would believe to be the WEST VIRGINIA MEDICAL JOURNAL, the *Journal of the American Medical Association* and the *Southern Medical Journal*. What are the figures? Out of a total of approximately 1840 physicians in the state, 1350—approximately 73 per cent—get the state journal; 905—a little less than 50 per cent—get the *Journal of the American Medical Association;* and 223—something over 12 per cent—receive the *Southern Medical Journal*. Are we, as a profession, using the means of postgraduate instruction most easily available to us?

Why does not the profession get more postgraduate instruction? No single answer can be given. One reason is the exacting nature of medical practice, especially as it applies to the general practitioner (we have always felt that this term should be "practician"), especially those in the smaller localities. The physician so situated finds his practice demanding, and of such a nature that he cannot in justice to his patients leave whenever he desires. His income, always variable, may forbid, especially when he considers that what income he has will change to an outgo while he is

away from work. And probably sheer inertia not to say laziness is often a factor.

How can the situation be improved? Certainly the refresher courses lately afforded in many states by joint action of the state societies and the state health departments, and subsidized by governmental funds have been productive of much good in that they have carried postgraduate instruction to the smaller communities. We believe they should be extended and developed. At least many interneships could be improved if staff members would take time to discuss their patients thoroughly with internes, and incidentally this phase of postgraduate instruction is not all one-sided for internes can often be donors as well as recipients of education. Whether there are enough organized courses of postgraduate instruction available is a question. Possibly some scheme of governmental subsidy of physicians taking such courses could be worked out. Certainly the public has stake enough in the matter to justify the consideration of such a subsidy. Kerr, in his presidential address before the American College of Physicians at New Orleans, suggested limited licensure with a certain amount of postgraduate work as a prerequisite to renewal of license. That has been suggested before but this is the first time to our knowledge that the suggestion has been spoken above a figurative whisper, and a procedure we dread to contemplate. Certainly some better and less stringent plan should be evolved.

At any rate here's luck to Dr. Hugh J. Morgan and his Committee on Postgraduate Education. —W. E. V.

THE ROBERTS REPORT

We have recently had an opportunity to study the report on industrial medicine in southern West Virginia made to the United Mine Workers of America by Dr. Kingsley Roberts, director of the Bureau of Cooperative Medicine of New York City. Dr. Roberts' survey, which was carried on over a period of several weeks, was financed from funds left by the late Edward A. Filene and jointly administered by the Good Will and Twentieth Century Funds. The area covered in the survey included southern West Virginia, Virginia, eastern Kentucky and northern Tennessee.

Dr. Roberts uses the word "deplorable" to describe industrial hospitalization and medical care in southern West Virginia. His report maintains that doctors and hospitals give "the least possible service for the money received" to some 122,000 coal miners who pay approximately $6,000,000 per year through payroll deduction for medical and hospital service. The estimated $6,000,000 includes $2,500,000 for medical care, $1,000,000 for "extras", $2,000,000 for hospitalization and $500,000 for hospital "extras."

With this phase of Dr. Roberts' report we do not agree. There are, no doubt, instances where deplorable conditions do exist. There are many places, on the other hand, where the highest type of medical and hospital services are rendered under the "list" system. Between these two extremes, we who have spent years (not weeks) in West Virginia know that fairly adequate medical and hospital service is rendered to the coal miners and their families; service that could no doubt be improved, service that is not beyond criticism, but certainly not service that is "deplorable." Dr. Roberts' use of terminology indicates that he is more sensational than painstaking.

With one section of Dr. Roberts' report we are in accord. He states "many of the physicians actually working at the mines are receiving salaries far too small for the work they are expected to do, and are prevented from raising their standards through poverty, isolation, and company domination." The report points out that the ills of the system are due to the type of control and the profits made by the coal operators and contractors out of medical expenditures.

Quoting further from the Roberts report, "the distinctly divided responsibility of the mine physician is not conducive to professional efficiency. Though his patients' money

pays his salary, he knows that his tenure actually depends on his standing well with the company. Coal companies pocket in many places a sizeable share of the medical care check-off paid by their employees, and elsewhere contract doctors receive as much as $2,400 a month and hire assistants for half of this figure or less to do their work."

In some instances this is true. Fortunately, however, this condition is more the exception than the rule. There are coal companies that exact a handsome profit from the medical check-off of their employees. There are contract doctors who are able to make big money from medical service which they do not personally render. There are company doctors who are forced to minimize industrial injuries in order to stay in the good graces of the coal company which employs them. But to say that this is the prevailing practice is just as foolish as to deny its existence altogether. To say that the system is all bad is just as foolish as to say it is all good. Here again Dr. Roberts accomplishes the sensational by indulging in half truths, yet the condition does exist in some instances and should not be tolerated by either the West Virginia State Medical Association, the West Virginia Coal Association or the United Mine Workers of America.

It is our opinion that Dr. Roberts' report is inaccurate and very much exaggerated. He has grossly overstated the abuses of the list system of southern West Virginia in the manner of a true propagandist. Nevertheless, his report is not without merit, for it does call public attention to abuses which we know exist and which may, unless curbed, some day grow to the alarming proportions already claimed by Dr. Roberts.

DIRECTORY RACKET AGAIN

During the past month a large number of West Virginia doctors have been solicited by a certain so-called "Medical Bureau" to apply for appointment to care for insurance company needs. A fairly liberal but meaningless fee schedule is enclosed. There is no obligation on the part of the doctor and no fee is required . . . except a fee of five dollars for listing in the "approved medical directory" for a period of one year.

Here again is the same old directory racket that has been plagueing the medical profession for years. It has a new dress, embroidered with new language and flounced with an alpaca fee schedule, but the same old carcass is still concealed underneath.

The reason behind the publication of any insurance medical directory is found in simple arithmetic. The average directory contains the names of 5,000 physicians. The fee charged for each listing is five dollars, which gives an income of $75,000. A liberal estimate of the cost of publication is $15,000. The promoter's "take" is therefore in the neighborhood of $60,000.

Some time ago the American Medical Association sent letters to 220 insurance companies in the United States and Canada, representing all types of insurance coverage, asking to what extent insurance company directories were used by their medical departments, claim departments and adjusters. Of the 118 companies which replied, there was a unanimity of opinion that the insurance directories were worthless. Almost every insurance company reported that it relied entirely on the Directory of the American Medical Association. The following reply of one company is typical: "*We all know the nature and the source of the names in these directories. Although oftentimes names do creep into these directories of competent and reputable men, as a source of reliable information they are worthless. We have contended that these special directories were of little value since they only include those doctors who were willing to pay a fee to have their name printed.*"

For the protection of its members, the House of Delegates of the American Medical Association, in 1936, unanimously adopted a resolution condemning insurance directory listings as unethical and forbidding its members to list their names in such directories.

General News

THE STATE MEETING

Final plans are nearing completion for the seventy-second annual meeting of the West Virginia State Medical Association at White Sulphur Springs on July 10, 11 and 12, 1939. The program has been arranged by the Scientific Committee so that all general sessions will be held during the morning hours, from 9:30 to 12:30 o'clock, and the meetings of the sections and special societies will be held in the afternoon.

The sections on Pediatrics, and Eye, Ear, Nose and Throat will be held on Monday afternoon, July 10, the Section of Internal Medicine and the West Virginia Obstetrical Society will meet on Tuesday afternoon, July 11, and the Section on Surgery and the West Virginia Heart Association will meet on Wednesday afternoon, July 12.

Among the outstanding essayists who have accepted program assignments are Dr. William Thornwall Davis of Washington, D. C., on Eye, Ear, Nose and Throat; Dr. E. C. Mitchell, of Memphis, on Pediatrics; Dr. George E. Bennett of Baltimore, on Orthopedic Surgery; Dr. William B. Porter, Richmond, on Internal Medicine and Heart; Dr. Charles Joseph Barone, Pittsburgh, on Obstetrics; Dr. Donald M. Brace, New York City, on Anesthesia; Dr. C. W. Mayo, Jr., Rochester, Minnesota, on Surgery; Dr. W. J. Engle, Cleveland, on Urology, and Dr. J. G. Bullowa, New York City, on Pneumonia.

The annual convention banquet and dance will be held on Wednesday evening. Dr. Oscar B. Biern, Huntington, has been selected as master of ceremonies and is in charge of the banquet program. A number of special group luncheons have been arranged, including the Jefferson College alumni and the Phi Beta Phi fraternity. A schedule of the special luncheons will be announced later. Meetings of the House of Delegates will be held on Monday and Tuesday afternoons, July 10 and 11, and evening meetings will be scheduled if and when necessary.

Attendance at the coming July meeting is expected to exceed last year's White Sulphur registration of 396 members. All general sessions of the Association will be held in the air conditioned auditorium. Both the auditorium and ballroom will be used for sectional and special society meetings. The exhibit hall will be between the lobby and ballroom and all available commercial exhibit booths have already been disposed of.

The complete convention program will be announced in the June issue of the JOURNAL.

COUNTY OFFICERS TO MEET

A special conference of all presidents and secretaries of the component county medical societies of the West Virginia State Medical Association will be held at the Daniel Boone Hotel, Charleston, on Wednesday, May 3, 1939, beginning at 10:30 o'clock in the morning. The conference was called in conformity with the action of the Council in its special Parkersburg meeting on April 13, for the purpose of receiving, studying and discussing the advance report of the Low Cost Study Committee, which is to be submitted to the House of Delegates at White Sulphur Springs.

The work of the Low Cost Study Committee, which began last October 2, was completed several weeks ago and was submitted to the Council at the special meeting at Parkersburg. It is understood that a number of proposed changes were suggested at Parkersburg and that additional worthwhile ideas and suggestions will no doubt be brought out in discussion of the report of the conference on May 3. The committee report suggests the establishment of non-profit prepayment insurance to protect the low income group against the hazard of medical and surgical service in the hospital.

In requesting the Conference of County Society Presidents and Secretaries, the committee felt that this would be the best means of getting the proposed plan properly presented to all of the various county medical societies. It was pointed out that this would give each society an opportunity to study the plan in advance of the White Sulphur Springs meeting and, if it cared to do so, to instruct its delegates either for or against the plan's adoption.

County society presidents have been instructed to appoint substitutes to represent their societies at the Charleston conference if either the president or secretary is unable to attend. All interested Association members are invited to attend the conference and to participate in the discussion.

DR. HOGE APPOINTED

Upon the resignation of Dr. Walter E. Vest, Huntington, Dr. Albert H. Hoge, Bluefield, has been appointed as West Virginia governor for the

American College of Physicians, it has recently been announced by Dr. O. H. Perry Pepper, president of the college.

COMING MEETINGS

American Medical Association—The ninetieth annual session of the American Medical Association will be held at St. Louis, Missouri, on May 15-19, 1939.

American Heart Association—The fifteenth scientific session of the American Heart Association will be held at the Hotel Jefferson, St. Louis, on May 12 and 13, 1939.

Obstetrics and Gynecology—The American Congress on Obstetrics and Gynecology will be held at Cleveland, Ohio, on September 11-15, 1939, under the sponsorship of the American Committee on Maternal Welfare.

Ophthalmology—The forty-fourth annual convention of the American Academy of Ophthalmology and Otolaryngology will be held in Chicago on October 8-13, 1939, with headquarters at the Palmer House Hotel.

Mental—The sixty-third annual convention of the American Association on Mental Diseases will be held at the Palmer House Hotel, Chicago, on May 3-6, 1939.

NEW MARRIAGE LAW

The new marriage law, which was passed by the recent session of the legislature and which provides for physical examination and a serological test to determine the presence of syphilis on all applicants for a marriage license, will become effective May 26, 1939. In order to avoid confusion and to give the physicians of the state information as to the provisions of this law and the procedure to be followed in carrying it out, a brief summary of the law and procedures for physicians is here outlined.

Summary of Marriage Law: 1. Beginning May 26, 1939, each applicant for marriage license in West Virginia must present a certificate from a licensed physician in West Virginia stating that the applicant has submitted to a standard laboratory test for syphilis and that, in the opinion of the physician, the person therein named is either not infected with syphilis, or, if so infected, is not in a stage of the disease which is or may later become communicable.

2. The serological test and the laboratory where the test is performed must be approved by the State Health Commissioner and the test must not have been made more than thirty days prior to the date of application for a marriage license.

3. The laboratory making the serological test shall make two reports to the physicians:

(a) A confidential report stating the exact result of the test. This report will be made on the regular laboratory form used for this purpose.

(b) A premarital certificate form on which shall be stated the name of the test done, the date it was completed, the name and address of the person whose blood was examined, but not stating the result of the test. This report shall be signed by the director of the laboratory or by the person authorized to make the test. The physician's statement and the laboratory statement shall be on the same form sheet. (These certificates will be supplied to approved laboratories by the State Health Department).

The certificate form will be as follows:

CERTIFICATE FORM REQUIRED FOR EACH APPLICANT FOR A MARRIAGE LICENSE IN WEST VIRGINIA

(To be valid must be made not more than thirty days prior to issuance of license)

RECORD OF STANDARD LABORATORY BLOOD TEST

This is to certify that a.....test for
(Name of test)

syphilis was performed on.....
(Date)

on a blood specimen submitted in the name of

.....
(Full name and complete address of applicant)

.....
(Name of laboratory)

Signed: .....
(Person authorized to sign for laboratory)

Has this laboratory been approved by the West Virginia State Health Department for syphilis serological examinations?..... If approved,
(Yes or No)

give certificate number.....

CERTIFICATE OF PHYSICIAN

This is to certify that I have examined

.....
(Name of applicant)

.....
(Address)

and, in my opinion, this person is not infected with syphilis or is not in a stage of the disease which is or is not in a stage of the disease which is or may later become communicable. I also certify that this person submitted to a standard laboratory blood test for syphilis, a report of which I have received and examined.

. . . . . .
(Date of examination)

. . . . . .
(Signature of physician)

. . . . . .
(Address of physician)

This is to certify that I am the applicant referred to in the above certificate.

. . . . . .
(To be signed by applicant in presence of examining physician)

This certificate is to be attached to the application for marriage and filed in the office of the Clerk of the County Court. V. D. 59

A copy of the law and a place for the clerk of the county court to sign will appear on the back of the above certificate.

4. In case of emergency, the law provides that the judge of the circuit court of the county in which an application for marriage license is to be filed may set aside the provisions of the law relative to the requirements for a blood test, but the judge's order shall be accompanied by a written memorandum stating the reasons for granting the order and must be filed with the application for marriage license. In the absence or incapacity of the judge of the circuit court to act, the order and accompanying memorandum may be issued by the judge of any judicial court adjoining the circuit in which such county is situated.

5. For violation of this act by the applicant, physician, representative of any laboratory or any licensing authority, the law provides a penalty, upon conviction, of not less than $200.00 nor more than $1,000.00 or confinement in jail for not less than three months nor more than nine months, or both, in the discretion of the court.

Procedure to be Followed by Physicians: 1. Examine the applicant and take a specimen of blood (not less than five c.c.'s).

2. Fill out the regular laboratory form which comes with the blood container and mark it "For Marriage Certificate." Be sure to write the name and address of the applicant plainly.

3. Mail the specimen to any laboratory which has been approved for syphilis serology by the State Health Department. (A list of approved laboratories will be supplied physicians on or before this law becomes effective. The names of laboratories approved after this date will be published monthly in the WEST VIRGINIA MEDICAL JOURNAL.)

The laboratory, as stated above in the summary of the law, will make two reports, one a confidential report on the regular laboratory form, and the other on a certificate similar to the one given above.

5. After receipt of the result of the test, if the physician feels that the applicant is not infected with syphilis, or, if infected, is not in a stage of the disease which may later become communicable, the physician should complete the premarital certificate set out above, have the applicant sign it in his presence and deliver it to the applicant.

6. If the physician finds the applicant to be infected with syphilis or in a stage of the disease that may later become communicable, he should return the premarital certificate to the laboratory and get the applicant under treatment at once. As soon as the physician has brought the disease to a stage which, in his opinion, will not become communicable, a new specimen of blood should be submitted to an approved laboratory and the usual procedure for obtaining marriage license carried out.

Plans are now being worked out whereby laboratories in the state will be approved for this work and a list will be supplied to each physician before the law becomes effective. This list will also be supplied county clerks who are responsible for issuing marriage licenses, so that they can check the certificate and see that the serological test has been done by a laboratory approved by the State Health Department. Questionnaires and forms for making application for approval by the State Health Department have been sent to all laboratories in West Virginia whose names are on file in the State Health Department. Necessary forms will be forwarded upon request to any laboratory which may have failed to receive them; requests should be addressed to the State Health Department, Hygienic Laboratory, Charleston, West Virginia. All laboratories in the state are urged to answer the questionnaire, even if they do not wish to make application for approval, so that an up-to-date registry of laboratory services available in different areas of the state may be maintained. Certificates of approval will be issued for the period ending December 31 of each year to those laboratories in the state which demonstrate their ability and accuracy in syphilis serological procedures. The State Hygienic Laboratory will cooperate with all laboratories approved by the West Virginia Health Department periodically as follows:

1. Specimens from known syphilitic and nonsyphilitic persons will be issued from time to time for examination by approved laboratories in parallel with the State Hygienic Laboratory and some nationally known laboratory. Thus, each approved

laboratory will have available an indication of the accuracy of the serological tests employed.

2. Small amounts of standard antigens, tested and approved by the originators of the standard tests, will be issued free; thus, each approved laboratory will have a means of checking antigens routinely used.

3. On request, descriptions will be issued giving the latest methods advocated by the originators of the standard syphilis serological tests.

In order that clerks may have information concerning physicians licensed in the state, as provided by law, the State Health Department is preparing a list which will be submitted to all county clerks. It should be called to the attention of physicians that due to the fact that annual registration of physicians is not required, it has been quite difficult to compile an accurate list and should it happen that the name of any physician is omitted, the physician in question should call this to the attention of the State Health Department immediately so that it can be corrected. In calling an error of this kind to the attention of the State Health Department, please give the date the license was issued and the number of the certificate.

In placing any new law into effect, which affects as many people as this law of necessity will, a certain amount of confusion is unavoidable, but every effort is being made by the State Health Department to inform the public of the provisions of the law and what procedures are to be carried out in placing it into effect.

CONSTITUTIONAL CHANGE

Complying with Section 1, Article XIV, of the Constitution of the West Virginia State Medical Association relating to amendments, we publish below, for the second time, the proposed amendments introduced at the White Sulphur Springs meeting in 1938, which will come up for action before the House of Delegates at White Sulphur Springs on July 10, 1939:

Section 1, Article V, to be changed as follows:

"1. The House of Delegates shall be the legislative and business body of the Association and shall consist of: First—delegates elected by the component county societies; Second—the five immediate past presidents; Three—ex-officio the president and treasurer of this Association."

Section 1, Article IX, to be changed to read:

"The officers of this Association shall be a president, president-elect, two vice presidents, executive secretary-treasurer, twelve councillors to be elected as provided in Section 2, and two councillors-at-large who shall be the retiring president and his immediate predecessor."

Section IV to be changed to read:

"The retiring president shall be chairman of the Council for the year following his term of office, and he shall not be eligible thereafter for any elective office of the Association except for delegate to the A. M. A. and committee membership. And he may be elected a delegate from his county society."

CHANGE IN BY-LAWS

Section 2, Chapter V, to read as follows:

"1. The officers of this Association shall be nominated by the Council at a meeting held just prior to the meeting of the House of Delegates at which time the Presidential Address is to be given. Except the Council shall be nominated and elected by the House of Delegates.

"2. There shall be two condidates nominated for each office.

"3. The officers of this Association shall be elected by the House of Delegates immediately following the President's Address."

DR. JOHN FOLK FOUND

The many West Virginia friends and associates of Dr. John Folk of Bridgeport were happy to learn that he had been found by a party of searchers on April 24 after being lost four days in a Florida mangrove swamp. However, his condition was considered critical at press time and some fears were felt for his recovery.

Dr. Folk became lost when he asked four companions in an automobile to wait while he attempted to gather tree snails he sighted while riding to Miami from Key West over the overseas highway. He expected to be gone about 15 minutes. When he failed to return, a search was started that eventually enlisted the aid of boats, airplanes and about 100 residents of the Florida keys, who joined CCC enrollees in attempting to find the retired physician-naturalist.

Dr. Folk is an honorary member of the Harrison County Medical Society and the State Association. He served several years on the Association Council, retiring in 1928 to devote his time to his hobby. He is 70 years of age and has spent the past several winters in Florida and California adding to his collection. Dr. Folk's hobby exhibit at the Clarksburg meeting in 1937 attracted wide attention.

Obituaries

DOCTOR W. H. POST

Dr. W. H. Post, prominent Preston county physician, died of complications following an operation on March 18, 1939. He was 62 years of age and had practiced at Masontown for more than a quarter of a century. Dr. Post graduated from the Baltimore Medical College in 1901 and was licensed in West Virginia the following year. He was especially interested in tuberculosis work, was a member of his county and state societies, and a Fellow of the American Medical Association.

DOCTOR JOHN W. ENGLISH

Dr. John Worth English, of McDowell, West Virginia, died on March 28, 1939 after an extended illness. He was born at Point Pleasant on February 16, 1874 and received his medical degree at Baltimore Medical School in 1897. He devoted all his practicing years to mining practice and was located at Bramwell, Mayberry, and McDowell. He was a member of the State Association for more than thirty years and was one of the best known physicians in McDowell county.

DOCTOR S. D. HAYS

Dr. Stokley David Hays of Flemington, West Virginia, was killed on April 21, 1939, when the car he was driving was struck by a B. & O. train. He was born in 1881 and was a graduate of Eclectic Medical College, Cincinnati, Ohio, in 1913.

VALUE OF ANTIPNEUMOCOCCUS SERUM

The use of dissimilar methods in treating identical twins for pneumonia illustrates strikingly the value of antipneumococcus serum, Jesse G. M. Bullowa, M.D., New York, reports in *The Journal of the American Medical Association* for April 1.

The twins, who were females, aged 17 months, had type XIV pneumonia complicating measles. One twin was treated immediately with the serum, responded promptly and was well within three days.

The other twin, from whom serum was at first withheld, had a much longer, stormy course with bacteremia (blood stream infection), and then responded favorably to the administration of serum.

County Society News

BOONE COUNTY

The Boone County Medical Society met in special session April 20 at 8:00 p. m. to hear Dr. Walter E. Vest discuss "Socialized Medicine and Medical Aid to the Indigent."

Doctors present were: Dr. Wilkerson, Dr. Vest, Dr. W. F. Harless, Dr. D. F. Pauley, Dr. R. I. Frame, Dr. H. H. Howell, and Dr. R. L. Hunter. Non-medical men present were Senator Luther R. Jones and Mr. E. P. Williams.

Dr. Vest, accompanied by Dr. Howell and Dr. Hunter visited the sanatorium on Williams Mountain. Dr. Vest was well pleased with the sanatorium. Senator Jones took notes on Dr. Vest's lecture, which will appear in his paper.

We also took up several nice rain coats for patients and nurses, donated by Mr. Nathan Haddad. We wish to thank Nathan for these coats and inform all tubercular people and friends of tubercular people who come into Boone county to be sure to see Nathan, Boone county's most popular department store.

R. L. HUNTER, *Secretary*.

CABELL COUNTY

The April 13 meeting of the Cabell County Medical Society was held at 8:30 p. m. at Huntington. Dr. J. Hallock Moore gave a paper on "The Discharging Ear." There were also case reports and other routine business. Dr. I. I. Hirschman, president, presided at the meeting.

JAY L. HUTCHISON, *Secretary*.

GREENBRIER INTERSTATE

The first meeting of the newly formed "Greenbrier Interstate Medical and Surgical Society" was held at the Greenbrier Hotel, White Sulphur Springs, in the Virginian Room, on April 17, 1939 at 8:15 p. m. A large number of doctors gathered for the meeting from the Greenbrier section and from Allegheny County, Virginia.

The scientific section of the program was presented by Dr. M. Pierce Rucker, Richmond; Dr. J. M. T. Finney, Jr., Baltimore, and Dr. Louis Geo. Herrmann, Cincinnati. Dr. Rucker spoke on "Further Experience with Knotless Sutures in Immediate Perineorrhaphy." Doctor Finney's paper was "Developments in the Study and Care of

Patients Suffering With Appendicitis." Doctor Herrmann talked on "Practical Aspects of Circulatory Disturbances in Extremities."

HANCOCK COUNTY

The Hancock County Medical Society has been having a meeting on the first Wednesday of each month during 1939, in the Williams Country Club at 8:30 p. m.

In January, Dr. Godfrey Beaumont of New Cumberland presented an interesting paper on "Meningococcic Meningitis" followed by a discussion by Dr. J. L. Thompson of Weirton.

At the February meeting Dr. Albert Sunseri of Weirton read a paper on "The Uses of Novocaine in Internal Medicine." This paper was discussed by Dr. E. R. McNinch.

The March meeting was favored with a speaker from Brooke county. Dr. J. P. McMullen of Wellsburg gave a most interesting paper and discussion on "Coronary Disease."

The April meeting will have a paper by Dr. F. E. Polen of Weirton on "Fractures." All these regular meetings are followed with a luncheon and social hour at the Williams Country Club. Attendance has averaged seventeen per meeting.

THOMAS H. BRUCE, *Secretary*.

LEWIS COUNTY

The regular meeting of the Lewis County Medical Society was held on Tuesday, April 11, with a dinner at the Camden Hotel, Weston. Mr. Mark Hall presented a plan of medical insurance which was approved and the following members were elected to act as a board of directors:

Dr. A. F. Lawson, Dr. W. P. King, Dr. O. L. Hudkins, Dr. C. R. Davisson, Dr. Ralph M. Fisher, Dr. G. M. Burton, and Mr. Kenneth Kurtz, attorney, Weston.

Dr. H. R. Coleman was elected a member of the Lewis County Society.

R. O. PLETCHER, *Secretary*.

LOGAN COUNTY

The Logan County Medical Society held a meeting on April 12, 1939, and Dr. J. L. Patterson, president, presided. Dr. L. B. Gang of Huntington presented a paper on "Familial Hemolytic Jaundice" and Dr. I. I. Hirschman, also of Huntington, pre-

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sented a paper on "The Incidence and Diagnosis of Carcinoma of the Lung." Both papers were illustrated with lantern slides and were very instructive.

Dr. J. B. Traul of Lorado and Dr. R. E. Traul of Whitman were duly elected to membership in the society. A resolution was passed on the recent death of Dr. C. A. Martin.

Dr. J. W. Carney, secretary, was appointed chairman of a committee to recommend at the next meeting a definite standard fee to be charged by all of the county physicians for the examination as required by the new marriage law.

J. W. CARNEY, *Secretary.*

MONONGALIA COUNTY

The April 4 meeting of the Monongalia County Medical Society was held in the Marine Room of the Hotel Morgan, Morgantown, at a six o'clock dinner. The program consisted of a presentation by Dr. Charles J. Barone of Pittsburgh on "Prenatal Care and Common Complications of Pregnancy."

OHIO COUNTY

The Ohio County Medical Society held its April 7 meeting in the Solarium of the Ohio Valley General Hospital, Wheeling, at 8:30 in the evening. Dr. T. E. Jones of the Cleveland Clinic presented a paper on "Abdominoperineal Resection." General discussion was given by Dr. W. P. Sammons and Dr. R. J. Reed, Jr. Dr. Wm. C. D. McCuskey, president, presided at the meeting.

At the April 21 meeting of the society, Dr. Samuel Iglauer, Professor of Otology and Laryngology, University of Cincinnati, was the principal speaker. He gave a paper on "Deep Infections of the Neck and Mediastinum." Discussion of the paper was led by Dr. M. F. C. Zubak and Dr. R. B. Bailey.

Dr. Walter E. Vest, Huntington, member of the American Medical Association's Federal Conference Committee and president of the Southern Medical Association, addressed the doctors of Ohio and surrounding counties at a special meeting held

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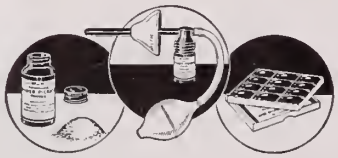

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SILVER PICRATE • Wyeth •

at the Windsor Hotel on Monday evening, April 24. He talked on the activities of the federal government pertaining to socialized medicine and compulsory sickness insurance and discussed the Wagner bill now pending in the present Congress. There was a large turnout to hear this interesting and informative address. Refreshments were served following the meeting.

R. W. LUKENS, *Secretary.*

PARKERSBURG ACADEMY

The April 5 meeting of the Parkersburg Academy of Medicine was called to order at 9:00 p. m. by Dr. W. R. Goff, president, who introduced Dr. Oscar Swineford of the University of Virginia, the guest speaker. Dr. Swineford gave a very interesting paper on "Observations in the Diagnostic and Therapeutic Problems in Allergy."

A five member committee was appointed to attend the meeting of the Low Cost Study Committee of the Council of the West Virginia State Medical Association on May 13. Doctors Wade, Widmeyer, Mathews, Harris, and Woofter were appointed.

The Academy has purchased a screen to facilitate the showing of lantern slides.

A. C. WOOFTER, *Secretary.*

Woman's Auxiliary

MARION COUNTY

The Woman's Auxiliary to the Marion County Medical Society met in Fairmont at the Hotel Fairmont on March 28, 1939. Mrs. John P. Helmick, president, presided and eighteen members were present. Miss Mary Jane Minnis addressed the group on *Hygeia* magazine.

It was decided to hold the next meeting on April 25 at the Hotel Fairmont.

BLAKE LEMLEY RAMAGE, *Secretary.*

AMERICAN OPHTHALMOLOGICAL SOCIETY

"In June of this year the American Ophthalmological Society will celebrate its seventy-fifth anniversary," *The Journal of the American Medical Association* for April 15 says. "On June 7, 1864, this society, the first in the United States devoted exclusively to ophthalmology, was formed. That first meeting was held at the New York Eye Infirmary with eighteen in attendance from New York, Boston, Philadelphia and Poughkeepsie. It has always stood for the highest medical practice ideals.

Entrance to Grounds

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COMMUNICATIONS

THE OLD GUARD SPEAKS

(Editor's Note:—The following letter is an acknowledgment of an honorary life membership card sent to Dr. Wise by the State Association).

It is fine to have lived through the years of change in the various departments of medicine since 42 years ago. And I wish to express my feeling of gratitude for the fine spirit with which the profession is treating the members in the older bracket. When I first started I felt that almost every older member had his foot on my neck and was pressing down. I am now convinced there is more of a tolerant spirit in the profession; the young for the old and the old for the young. Should this not be the general attitude, I am glad to say it is mine. Forty-five years ago when I started to school we were taught to observe by the use of our God given faculties, and the nose was a very wonderful part of our laboratory equipment in measles, typhoid, smallpox and various other infections and diseases that the discovery of the germ by the microscope has almost removed from the list of diseases we now treat.

Too many of my old friends died too young. I have lived long enough to see that we die very much as we live, barring accidents of others. My greatest success in life has been to live to be 71 and feel as good as I do now. When I was a boy a man was very old at sixty-five.

I am sorry the State meeting is dated for the middle of my summer vacation. I suppose I shall be catching from one to four washtubs full of fish each day of the meeting. It is just too bad that I cannot meet my old friends; that is one of the things that I count very worthwhile. What is nicer than a smile and a handshake by Henry, Maxwell, Hood and a long list of the old boys of forty years ago.

Thanks for the card, and the spirit that prompts it.

S. H. D. Wise, M. D.
Parkersburg, W. Va.

BRAIN INFECTION BY FUNGOUS PARASITE

The first reported case of infection of the brain by coccidioides (a fungous parasite) in the vicinity of Tucson, Ariz., is described by B. P. Storts, M. D., Tucson, in *The Journal of the American Medical Association* for April 8.

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BOOK REVIEW

GENERAL THERAPEUTICS

The 1938 Year Book of General Therapeutics. Bernard Fantus, M. D., Editor. Cloth. 544 pages. The Year Book Publishers. Chicago. Price $2.50.

This volume, the largest yet published on therapeutics in the series, covers approximately 2,000 articles published during 1938. From these, material has been culled for 474 articles which present to the clinician the new, the clinically sound, and the practical in treatment developed during the past year. Therapeutic technique, pharmaceuticals and physical therapy are alike covered well. The chapter on toxicology is very complete and interesting. Sulfanilamide is especially well covered. Everything considered, this is the best of the entire series of 21 volumes on the subject edited by Dr. Fantus, and none of them have been poor. The book is especially valuable to the busy practician on "the firing line" of actual practice.

WITH OUR ADVERTISERS

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Epinephrine in oil, as developed by Dr. Edmund L. Keeney of Johns Hopkins Medical School and Hospital, was placed on the market April 1 by E. R. Squibb & Sons. This preparation is a suspension of powdered epinephrine crystals in peanut oil, in the proportion of two mg. in each one cc., resulting in a dosage form of epinephrine that has a more prolonged effect than the usual aqueous solution of epinephrine hydrochloride.

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TUBERCULOSIS ABSTRACTS

(Continued from page 237)

etc., but is really part of the reticulo-endothelial system and is an expert phagocyte. It is found in pulmonary tuberculosis, the pneumoconioses, chronic congestive failure and pulmonary edema, and may contain tubercle bacilli, carbon pigment, red blood cells or hemoglobin pigment, as the case may be. The refractile particles of quartz or asbestos found in the pneumoconioses cannot be seen in the ordinary stained specimen.

With regard to the third group, excluding the hepatic cells of ruptured liver abscess and the lymphadenoma cell of Hodgkin's disease which the writer has only seen in sputum on one or two occasions, the cells of this group are neoplastic. In the case of secondary growths of the lung, any form of cell which is found in the primary growth may, of course, appear in the sputum, but in the primary malignant growths of the lung the cells are for practical purposes of two kinds only, the oat-cell carcinoma and the squamous carcinoma cell. The oat-cell carcinoma is generally associated with a primary massive growth of the mediastinal glands and although this growth exerts great pressure on the main bronchi, it does not as a rule ulcerate and break down. The oat-cell, therefore, is not commonly found in sputum. Moreover, it is difficult to differentiate from granulation tissue cells and fibroblasts from the bronchial wall. This cell, therefore, should be diagnosed with the very greatest care.

The squamous carcinoma cell is derived from bronchial growths. It is not sufficiently realized that

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bronchial carcinoma breaks down into cavity with even greater regularity than a tuberculous lesion. A single pulmonary abscess developing insidiously in a person of middle age without obvious cause is more likely than not to be a breaking down bronchial carcinoma. This cell can be found readily in the sputum but must be carefully distinguished from the normal transitional squamous cell of the upper respiratory tract. It is usually found adhering to its neighbors in small plaques, the individual cells of which exhibit marked diversity of form and size. In the early stage of its growth the cell shows a rounded nucleus with an open chromatin network, a large nucleolus, and a more or less clear cytoplasm with a cell envelope attached to its neighboring cell along the contiguous border, and prickle-cell arrangement. As the cell develops, vacuolation takes place and the nucleus is pushed to one side until it eventually comes to occupy a position near the cell envelope and is squeezed into a horseshoe shape. Keratinisation of the cell follows and the cytoplasm stains darker in consequence. All these stages may be found in the different cells of one plaque, and when keratinisation occurs it is possible to identify individual squamous carcinoma cells irrespective of plaque formation. Cell nests are rarely found in sputum films. The carcinoma cell does not phagocyte—a cardinal point in distinguishing it from the macrophage with which it is very easily confused.

Space does not permit of a description of wet films and of frozen and paraffin sections, but the stained film method outlined above will amply repay careful study. It is possible thus to make a diagnosis of asthma, bronchial ulceration and chronic pulmonary edema, whilst it is of the greatest value in detecting bronchial carcinoma and will even enable one sometimes to gain corroborative evidence of pulmonary tuberculosis.

TYING OFF EXTERNAL CAROTID ARTERY

Only the external carotid artery should be tied off for otherwise uncontrollable profuse nasal hemorrhages, J. L. Fetterman, M. D., and W. H. Pritchard, M. D., Cleveland, warn in *The Journal of the American Medical Association* for April 8.

Their warning is based on a case in which the left external and left internal carotid artery were tied off. Following this ligation, convulsions, impairment of intelligence, defection in the understanding of the written or spoken word, numbness of the left side of the body, and one-sided paralysis resulted.

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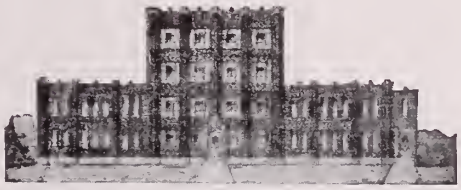

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THE TREATMENT OF ENDEMIC GOITER AND OF SEVERE HYPERTHYROIDISM*

By GEORGE CRILE, Jr., M. D.**
Cleveland, Ohio

ENDEMIC goiter is prevalent in certain parts of this country, such as in the region of the Great Lakes. The iodine in this region has been washed from the soil and has flowed from the lakes to the sea. Therefore, the iodine intake of the average person is very low, and although it usually is sufficient for ordinary requirements, it may at times of particular endocrine activity fall below the level of physiological necessity and result in a relative iodine deficiency.

Sixty-five per cent of thyroxin, the active agent of thyroid secretion, is iodine. When the diet does not contain sufficient iodine, the thyroid gland finds itself in the position of a factory attempting to maintain its output during a famine of raw material. The gland rapidly utilizes its store of iodine-containing colloid and undergoes hypertrophy and hyperplasia in an attempt to keep up its production of thyroxin. Although subsequent involution to the colloid phase occurs, these changes produce permanent alterations of thyroid histology, lay the foundation for endemic goiter and occasionally result in the development of carcinoma.

THE AUTHOR

Dr. George Crile, Jr., graduated Harvard University Medical School, 1933; National Board, 1935; Cleveland Clinic Foundation Hospital; distinguished son of a distinguished father.

DIFFUSE GOITER WITHOUT HYPERTHYROIDISM

Adolescent goiter can always be prevented, but rarely can it be cured by medical treatment. In some cases, if the changes have been present for a relatively short time, if the patient is in the early teens, and if adequate doses of iodine (such as a 25 per cent solution of potassium iodide in one minimum dose given twice a week) are given and are supplemented by desiccated thyroid in doses up to one-half grain daily when the basal metabolic rate is normal, or in quantities sufficient to

*Read before the Harrison County Medical Society, Clarksburg, West Virginia, October 6, 1938.

**Cleveland Clinic Foundation.

correct any hypometabolism that may be present, a gradual diminution in the size of the gland may be noted. In older children, however, and particularly in those more than eighteen years of age, little regression can be expected and the most we can hope for is prevention of further enlargement. There is no reason to consider the surgical removal of a diffuse, adolescent goiter unless it is large and the patient desires its removal for cosmetic reasons.

NODULAR GOITER WITHOUT HYPERTHYROIDISM

Wegelin's autopsy studies[1] have shown that, in the goiter regions of Switzerland, (1) in the younger groups, nearly 100 per cent of the thyroid glands which were examined showed the presence of diffuse goiters; (2) as age advanced, an increasing percentage of nodular goiters were found; and (3) in the oldest groups, 100 per cent of the goiters were of the nodular type. These figures show that the development of adenomata in a goitrous gland is nearly certain to occur if the patient lives long enough for these changes to take place.

The serious complications of goiter are (1) hyperthyroidism, (2) intrathoracic growth, (3) growth to excessive size, and (4) the development of malignant tumors. More than 90 per cent of all malignant epithelial tumors of the thyroid have their origin in preexisting adenomata (Graham).[2] Practically all intrathoracic goiters are adenomata which have grown downward into the thorax. Hyperthyroidism, aside from true Graves' disease, is nearly certain to be associated with an adenomatous type of gland. What steps are we justified in taking to avoid the development of these serious complications? In short, should the routine removal of all nodular goiters be recommended?

Obviously, the removal of all nodular goiters would be utterly impractical. In the first place, the incidence of adenomatous goiter is extremely high and in some regions the majority of the population may be affected. In the second place, the type of adenomatosis which is present in these cases appears, as Reinhoff's[3] studies have indicated, to be a physiological process of degeneration and regeneration involving the entire gland. Therefore, even after a subtotal thyroidectomy had been performed, a certain amount of adenomatous tissue would remain. And lastly, experience has shown that malignant change is a relatively rare finding in the diffuse adenomatous gland. Hyperthyroidism, moreover, can be treated safely and cured surgically after it has appeared, and a substernal goiter can likewise be removed with safety after its symptoms first bring the patient to the physician. In the diffuse adenomatous gland of moderate size, therefore, prophylactic thyroidectomy is not insisted upon and our policy is that of careful observation.

The indications for prompt thyroidectomy are (1) enlargement of a preexisting adenoma; (2) the finding of an unusually firm adenoma of a consistency different from the remainder of the gland, (3) the development of hyperthyroidism; (4) symptoms of pressure denoting intrathoracic extension or tracheal compression; and (5) for cosmetic reasons at the patient's request. The removal of a large goiter is also indicated in the presence of symptoms such at fatigue, palpitation and dyspnea, which are perhaps the result of a combination of psychic and mechanical factors, as well as of the presence of a large, vascular bed which places excessive strain on the myocardium.

THE DISCRETE ADENOMA

The finding of a firm, circumscribed, discrete adenoma, particularly in a patient beyond middle age presents a more serious problem. Even if there is no evidence of hyperthyroidism, even if the adenoma is of relatively small size, and even if there had been no recent growth, its removal should be advised.

Certain clinical and pathological qualities of neoplasia render the management of the discrete adenoma a different problem from that of the diffuse adenomatous gland. There is no need to speculate as to the frequency

with which carcinoma will develop in this type of gland because it is known that approximately two per cent of such adenomata are found by the pathologist to be malignant despite the fact that the diagnosis was not suspected before operation. For this reason, we believe discrete adenomata should be removed before the patient reaches the age of thirty-five years.

In the Cleveland Clinic series there are six cases in which a diagnosis of benign goiter was made and in which operation was advised at the time of the original examination, but was deferred by the patient. Later, when the patient returned for operation a malignant tumor was found in each case and, in the majority of these, the tumor had become so extensive that its complete removal was impossible.

THE TREATMENT OF HYPERTHYROIDISM

In recent years the technical advances that have been made in the surgery of the thyroid gland have made operations for simple goiter practically devoid of risk. From the technical standpoint the surgical treatment of hyperthyroidism has likewise been standardized. But the preoperative and postoperative management of patients with severe hyperthyroidism is still unstandardized and the rationale of certain essential parts of the treatment is often imperfectly understood.

An analysis of a group of 9,630 consecutive cases of hyperthyroidism treated by surgery at the Cleveland Clinic Hospital has shown that the chief factors influencing the risk of thyroidectomy are: (1) the condition of the heart, (2) the age of the patient, (3) the response of the pulse curve to preoperative treatment, and (4) the degree of extension of the goiter into the thorax. Also influencing the risk, but of relatively less importance, are the presence of a rapid pulse rate at the time of the patient's entry to the hospital, a history of marked loss of weight, or the finding of a high basal metabolic rate. Except in special instances, the prognosis is not materially altered by the duration of the disease.

When one or more of these factors are present and when the risk of thyroidectomy is accordingly increased, all the means at our disposal must be mobilized to minimize the postoperative reaction. The complications of thyroid surgery (thyroid crisis, pneumonia, liver failure, and cardiac failure) which are so difficult to treat are relatively easy to avoid if these complications are treated prophylactically before they develop.

PREOPERATIVE CARE

Diet: When a patient with hyperthyroidism has a basal metabolic rate of plus 100 per cent, the basal caloric requirement is increased by 100 per cent over the requirements of a person of equal weight with a normal metabolism. When a sufficient caloric intake is not provided, such a patient must find fuel for the demands of metabolism and in so doing will literally burn herself up. The glycogen of the liver is depleted, fat rapidly disappears, and weight is lost with amazing rapidity.

It is often impossible for a patient with a high basal metabolic rate to eat the bulk of food necessary to maintain her weight unless a concentrated high caloric diet is given. The diet, therefore, should contain large amounts of carbohydrate in order to replenish the depleted glycogen reserves of the liver. In addition, since the serum proteins tend to be lowered in severe hyperthyroidism, the diet should be relatively high in protein.

The importance of diet in the preoperative treatment of patients with severe hyperthyroidism can scarcely be overemphasized. On several occasions I have observed states of mental confusion following restrictions of diet and in one instance a mild thyroid crisis developed. This patient, a man 43 years of age, had a basal metabolic rate of plus 96 per cent. A pole ligation had been performed and, through a misunderstanding of orders, he was put on a limited diet such as is given to patients after abdominal operations. There was no immediate reaction to the surgical procedure, but six days later the patient became delirious, refused food, the pulse rate

and temperature rose, and for 10 days he was critically ill. The usual treatment with iodine and the continuous intravenous administration of a five per cent solution of glucose was given, but the symptoms did not subside until an intake of 6000 calories was restored by feeding through a nasal tube.

SEDATION

In patients with hyperthyroidism, sedatives are valuable during the preoperative period, and experience has shown that bromides or codeine are of more value than barbiturates. Occasionally, especially in older patients or in cases of extreme hyperthyroidism, barbiturates will excite the patient or may even precipitate a maniacal state. The barbiturates and bromides are contraindicated in the presence of mental confusion because, occasionally, the delirium is the result of the prolonged use of these drugs before the patient was admitted to the hospital.

IODINE

Plummer[4] has shown that iodine brings about a striking effect in the control of hyperthyroidism. Iodine should be given preoperatively in cases of hyperthyroidism associated with any type of goiter, either nodular or diffuse.

PSYCHOLOGICAL CONSIDERATIONS

A severe emotional reaction in a patient of unstable makeup may be precipitated by so slight a change as the sudden appearance of a stranger with an unfamiliar apparatus such as the gas machine. We have seen a fatal thyroid crisis initiated by draping a patient for operation and administering the lightest gas oxygen analgesia although the operation was cancelled because of the patient's emotional reaction. It is therefore advisable, in cases in which it is best to avoid basal anesthetics, to have the anesthetist visit the patient daily, administer inhalations of oxygen, and gain the patient's confidence.

Morphine is a valuable adjunct to surgery performed under local anesthesia. The tolerance to morphia, as well as to basal anesthetics and to the majority of depressant drugs, varies in direct proportion to the basal metabolic rate of the patient, the drugs being quickly metabolized without exerting their full pharmacological effect when the metabolism is high.

Since we believe that morphine produces less excitation, less depression, and more analgesia than any other drug, we give as large a dose as the patient will safely tolerate when the operation is to be completed under local anesthesia. The amount given is judged in accordance with the basal metabolic rate, the weight and the age of the patient, and varies in adults from one-sixth to one-half grain.

We use the oxygen tent routinely after operations on bad risk patients. Occasionally the patient will be confused after operation and will awake to find herself enclosed in a tent and may strike at it and exhaust herself in demanding that it be removed. In order to avoid this issue, the bad risk patient is placed in the tent for a few minutes several days before the operation so that she can overcome any apprehension that she might have in regard to the tent.

DIGITALIS

Preceding operation, full doses of digitalis are given to patients in whom there is evidence of cardiac decompensation, to patients with auricular fibrillation, and to patients with valvular or myocardial heart disease. In addition, digitalis is given to a large proportion of the elderly patients with vascular disease of the type in which we know that the incidence of postoperative auricular fibrillation is relatively high.

TIME OF OPERATION

The preoperative routine is continued until the pulse curve has come down to the point where it begins to flatten out and until it does not appear that the pulse rate will fall any lower. Although the fall in the basal metabolic rate usually parallels the pulse curve, it must be remembered that the former is merely a laboratory procedure and the latter is a sound clinical test which represents the response of the organism as a whole to changes in the severity of the hyperthyroidism. It is this response and not merely the

basal metabolic rate that affords the best clinical index of a remission of hyperthyroidism. When the pulse curve has fallen nearly to the base line, when the weight curve shows a consistent rise, and when the clinical appearance of the patient indicates that she has developed as much emotional stability as can be expected, then the time for operation has arrived. Even if the basal metabolic rate is high, the patient is in as good a condition for operation as she will ever be.

PLACE

When a nervous patient is to have an operation under local anesthesia supplemented with nitrous oxide analgesia, it is of definite advantage to carry out the procedure in the patient's room without moving her from her bed. The disturbances associated with transferring the patient from bed to stretcher and stretcher to operating table, and the inherent fear of the operating room may produce psychic trauma, destroy the analgesic state induced by preoperative hypnotics, and render the patient so nervous and apprehensive that any sensation is interpreted as pain.

If, however, an anesthetist with whom the patient is already acquainted brings in the familiar gas machine and starts administering oxygen just as she has on previous occasions, if the patient is lying undisturbed in her own bed in her own room, if her mind is distracted from the surgical procedure by a combination of light gas oxygen analgesia and conversation especially designed to focus her attention away from the operation, then it is relatively simple to infiltrate the neck with novocaine and remove the thyroid, often without the patient being aware that the operation is going on. Thyroidectomy for hyperthyroidism is therefore performed in the patient's room without moving her from her bed.

ANESTHESIA

Pneumonia is the most common cause of death after thyroidectomy in elderly patients. General anesthetics tend to depress respiration, to abolish the cough reflex, and to act as a protoplasmic depressant, lowering the patient's resistance to intercurrent infection, notably pneumonia. In the aged, the depression incident to a basal or general anesthesia may be the deciding factor as to whether or not a fatal pneumonia will develop. Therefore, in the majority of patients over 45 years of age, no basal anesthetic is given and the operation is performed under local anesthesia supplemented with nitrous oxide analgesia.

In a strong young individual, the margin of safety is so great that the depression induced by a basal anesthetic can be disregarded; yet even in younger patients profound narcosis is undesirable, whether it be induced by inhalation anesthesia or by any of the various drugs used as basal anesthetics. Occasionally, in the course of a thyroidectomy, particularly when it is necessary to deliver a retrotracheal extension of the gland, a stridor may develop even in the absence of injury to the recurrent laryngeal nerves. When this occurs, a patient who is conscious is better able to maintain respiratory exchange than is a patient who is under deep anesthesia. The same principle applies as in the surgical treatment of a deep abscess or cellulitis of the neck in which case it is widely recognized that a general anesthetic may result in fatal respiratory obstruction. Emergency tracheotomies will be avoided by performing thyroidectomies under local anesthesia supplemented in good risk patients by no more than a light basal analgesia.

For many years Doctor Crile, Sr., has judged the condition of the patient during the operation by her morale during the procedure and by her responsiveness to conversation with the anesthetist. Especially in older patients, the first sign of an unfavorable reaction will be the inability of the patient to think clearly and to react. This sign usually precedes the rise of pulse rate by some minutes and affords a good indication for stopping the operation after the removal of a single lobe. A valuable indication of an unfavorable reaction must therefore be sacrificed if a general anesthetic is given. And finally it is of value after the removal of the first lobe to hear the patient talk and to assure

one's self of the integrity of the recurrent laryngeal nerves.

Patients in the younger age groups are not susceptible to postoperative pneumonia. In these cases, the greatest danger is from thyroid crisis, and the sedation afforded by a basal anesthetic of sufficient depth to afford amnesia without excessive depression is extremely valuable.

In the presence of a low or normal basal metabolic rate, the patient will be analgesic (although generally not completely unconscious) after the administration of avertin in a dosage of 50 or 60 mg. per kilogram of body weight, whereas a patient with a basal metabolic rate of plus 50 per cent will require 70 mg. per kilogram for a similar effect and patients with higher metabolic rates may require even larger doses. If a middle ground is to be reached between absence of analgesic effect on the one hand and undue depression on the other, the amount of anesthetic to be given should be varied in accordance with the basal metabolic rate. In our experience, it has been possible to obtain this middle ground of analgesia in 94 per cent of the patients receiving basal anesthetics. In this group, the patients had no unpleasant recollections of the operation and yet were able to talk throughout the procedure.

TYPE OF OPERATION

The advisability of stage operations in cases in which the risk of thyroidectomy is great has been emphasized by Lahey,[5] Mayo,[6] Dinsmore,[7] Crile, Sr.,[8] and others. We are in complete accord with this preference for stage operations in bad risk patients and at the present time are performing pole ligations on one per cent of the patients with hyperthyroidism and lobectomies on 12 per cent, usually reserving these procedures for patients in the older age groups.

In this series, although there have been 49 deaths following the first stage of the operation, there has never been a fatality following the second lobectomy for hyperthyroidism when the patient has been sent home between stages.

Proponents of a one-stage procedure have stated that dividing the operation merely subjects the patient to the risk of two surgical procedures instead of one. In view of the fact that the risk following a second lobectomy is so slight as to be negligible, these arguments would appear to be unsound. We are convinced that many patients who barely survived a single lobectomy would have expired if the entire operation had been carried out at the time of the first stage. Occasionally, when the reaction to the first stage has been minimal, it is entirely safe to reopen the incision at the end of two or three days and remove the other lobe, thus saving the patient the expense and inconvenience of a second period of hospitalization.

In desperate cases, ligations of the superior poles done separately a week apart are followed by a course of röentgen therapy before the patient is discharged from the hospital. I believe that in some instances more striking remissions are obtained by ligation and röentgen treatment than could be obtained independently by either agent. I wish to emphasize at this point that röentgen therapy is not recommended in the treatment of hyperthyroidism except as an adjunct to surgery in selected cases involving the greatest operative hazard. Three months after the ligation, the patient returns for a lobectomy and is again discharged to return in two months for the final lobectomy.

POSTOPERATIVE CARE

The reaction postoperatively is directly or indirectly responsible for the majority of deaths following operations for hyperthyroidism. Even though pneumonia, cardiac failure, and the thyroid crisis in this order are rated as the most common causes of death, it is clear that in the majority of cases the thyroid reaction is the indirect cause of the fatal complication. A postoperative routine designed to minimize the thyroid reaction should therefore be established and applied to every bad risk case.

In recent years we have recognized an unclassifiable type of fatality in which an old

and feeble patient appears to "fade away" as though from a profound metabolic exhaustion. We believe that this "metabolic exhaustion" is a modification of the thyroid reaction dependent on the inability of feeble and aged patients to muster sufficient reserves of strength to give the appearance of thyroid stimulation or even to produce a marked elevation of the temperature. Although a classical thyroid crisis is the immediate cause of death is less than one-fourth of all fatal cases, it is clear that thyroid reactions of lesser intensity predispose not only to the reaction just described but also to cardiac failure and to pneumonia.

ADMINISTRATION OF IODINE

While we believe that small amounts of iodine should always be continued for at least two days after operation, we never have felt that the postoperative use of large doses of iodine exerted any striking effect on the thyroid reaction of a patient who before operation had received full doses of iodine. The action of iodine is not on the tissues of the body or on the thyroid hormone circulating in the blood, but is rather a direct one on the secretory activity of the thyroid gland.[9] For this reason, large doses of iodine cannot be expected to produce any further effect on the postoperative reaction of a fully iodized patient. The best we can do is to administer the routine small dose of iodine so that at least there will be no exacerbation of symptoms incident to its withdrawal.

BLOOD TRANSFUSION

If anemia is present, the heart is handicapped during the thyroid reaction by the inability of the blood to carry its full quota of oxygen. Although it is often inadvisable to give a transfusion during the height of a thyroid crisis when the slightest reaction to transfusion would tend to elevate a temperature that is already dangerously high, a blood transfusion given immediately after operation is a valuable therapeutic measure in the treatment of patients with severe hyperthyroidism or in aged and debilitated patients.

OXYGEN TENT

For the past seven years we have made a practice of placing all bad risk patients in the oxygen tent immediately after operation. The oxygen tent is not used for pulmonary complications only, but has been found effective in the treatment of cardiac failure and of uncomplicated thyroid crises. We have repeatedly observed a fall in temperature of from one to three degrees within three hours of the time the patient is placed in a tent. Whether this effect is the result of the oxygen of the refrigerated air of the tent, or a combination of the two factors is not clear. That the temperature of the air undoubtedly plays a part in the control of thyroid crises is indicated by the fact that fatal thyroid crises in this series have been 2.4 times as frequent in the hot summer months as in the remainder of the year. The refrigerated oxygen tent is therefore placed over the bad risk patient as soon as the operation is completed.

SEDATION

The most valuable drug for the control of discomfort and restlessness in patients convalescing from thyroidectomy is morphine. The tolerance of the patient to morphia varies in direct proportion to the degree of elevation of the basal metabolic rate and patients with high basal metabolic rates, especially when in the height of a thyroid crisis, should be given large doses of morphia (up to one-half gr.) at frequent intervals.

CONTINUOUS INTRAVENOUS GLUCOSE ADMINISTRATION

Patients with severe hyperthyroidism have exhausted the reserves of glycogen that are normally present in the liver.[10] The increased metabolism demands fuel for oxidation. After operation, it is painful to swallow, nausea and vomiting are frequently present, and the patient takes little fluid or nourishment. Thus at the time when the caloric demand and the demand for fluid is highest, the patient's liver is depleted of glycogen and neither food nor fluid is being taken. Unless an adequate caloric intake is promptly restored, the organism must literally oxidize itself in order to provide fuel for the raging

metabolism. Moreover, since perspiration is essential to the body's disposal of heat it is essential to furnish enough fluid to supply the body's demand. In patients with severe hyperthyroidism, the continuous administration of glucose solution into a vein will prevent this crisis of catabolic processes and minimize the postoperative elevation of pulse rate and temperature. By giving glucose solution intravenously by the continuous drip method to all patients with severe hyperthyroidism, we have not in the past two years seen a single instance of postoperative hyperthermia that could not be effectively controlled merely by the administration of ten grains of aspirin.

FORCED FEEDING

Usually it is impossible to administer intravenously more than 2,000 calories a day in the form of glucose without losing much of the glucose through the kidneys. This is a small part of the total caloric requirement of a patient in thyroid crisis and should be supplemented, when the patient is able to eat, with high caloric, high carbohydrate feedings. If the patient refuses food, the feedings can be given through a nasal tube.

CAUSES OF DEATH FOLLOWING THYROIDECTOMY

Pneumonia, myocardial failure, and thyroid crisis in this order have already been mentioned as the most common causes of death following thyroidectomy. An analysis of the fatalities shows that each cause of death is far more common in certain groups of patients than in others. For example, pneumonia is the most common cause of death following thyroidectomy in patients over 60 years of age and in patients with intrathoracic goiter, and is more common in men than in women. Thyroid crisis, on the other hand, is the most common cause of death in patients whose pulse curves are "flat", in patients who have had psychoses, and in patients with excessively high basal metabolic rates. In patients with cardiac complications, the most common cause of death is myocardial failure. If the best results are to be obtained, the relative susceptibility to the common complications must be recognized and treatment must be instituted to avert the complications to which the individual is most susceptible.

POSTOPERATIVE TREATMENT

In the younger patients who have a flat pulse curve, an excessively high basal metabolic rate, or in those who have had a psychosis, the greatest danger is from thyroid crisis and our therapeutic measures against thyroid crisis including blood transfusion, a continuous intravenous drip of glucose solution, the oxygen tent, and morphine in doses sufficient to insure comfort and rest, should be used immediately following the operation. Patients with severe hyperthyroidism, as Coller[11] has shown, lose enormous quantities of water through the skin and it is advisable to give from 3000 to 7000 cc. of 10 per cent glucose solution a day until the patient is eating and drinking well. In order to avoid an excessive intake of chlorides, glucose in distilled water is alternated with glucose in saline solution. In this group of cases, especially if the patient is relatively young and otherwise in good condition, a basal anesthesia of avertin is of definite value in controlling the overactive emotional mechanism and minimizing the postoperative reaction.

A thyroid crisis is a vicious circle of hyperthermia and hypermetabolism in which each Fahrenheit degree of elevation of the temperature results in a 7.2 per cent increase in the metabolism and in the production of heat. Unless the mechanism for the dispersion of heat is accelerated, a further rise of body temperature will ensue. The oxygen tent and ice bags placed on the patient's extremities and about the sides of the body will usually control any tendency to hyperthermia. If, in spite of these measures, the temperature should rise to critical levels, the patient, with the skin protected, can be literally packed in cracked ice so that more heat is abstracted than can be created. Fortunately, this type of reaction is now extremely rare and, in the great majority of cases, 10 grains of aspirin

will result in a defervescence of from one to three degrees in a period of two hours.

HYPERTHYROIDISM IN OLD AGE

The management of the aged patient in whom pneumonia is the greatest hazard is quite different. We have seen that sedation and avoidance of psychic disturbances are fundamental principles in the management of severe hyperthyroidism in the young adult. But in the aged and also in patients with intrathoracic goiter, we must avoid depression of the respiration, of the cough reflex, or of the internal metabolism of the body because of the danger of inducing a terminal pneumonia. Depressant drugs are tolerated well in the young, but easily force the aged below the threshold of resistance to pneumonia. Blood transfusion, the oxygen tent, and every resource at our disposal must be utilized to build up the resistance of the aged patient.

In the aged it is better to perform the operation under local anesthesia with a minimum of nitrous oxide analgesia. Similarly, the use of morphine postoperatively should be limited to the minimum requirements.

In old age, the principle of the multiple stage operation should be followed and a trial ligation should be performed if there is any question in the mind of the surgeon in regard to the ability of the patient to withstand a more extensive operation.

Ice bags should be applied only when absolutely necessary so that chilling with its attendant liability to pulmonary complications may be avoided.

During the postoperative reaction, an elderly patient occasionally becomes so feeble that she is unable to raise the mucus which has accumulated in the trachea and bronchi. When this occurs, the patient becomes cyanotic, dyspneic, the temperature rises, she becomes more feeble, the attempts to cough become progressively weaker and a fatal bronchopneumonia may develop. Atropine and the various expectorant mixtures have not been effective. Recently we have adopted the simple expedient of giving the patient seven and one-half grains of caffeine sodium benzoate, withholding sedation, periodically elevating the foot of the bed on high shock blocks, and urging the patient to cough while lying prone with the head down at an angle of approximately 30 degrees. After five or ten minutes of postural drainage, an astonishing amount of mucus will pour out, cyanosis will clear up, and the temperature and pulse rate will fall promptly.

HYPERTHYROIDISM WITH CARDIAC COMPLICATIONS

Preoperative digitalization, as has been mentioned previously, is of value in those patients who show evidence of severe myocarditis or who have auricular fibrillation or cardiac decompensation. Oxygen therapy is of value in the presence of cardiac complications as is morphine in doses adequate to insure rest. In this way, the failing myocardium is strengthened by the digitalis, the efficiency of the oxygen-distributing function of the heart is increased by the oxygen tent, and the metabolic demands of the organism as a whole are decreased by the morphine to the point where a balance between oxygen supply and demand is struck and cardiac compensation is restored.

Blood transfusion is contraindicated in the presence of acute cardic decompensation and the intravenous administration of fluids should not exceed 3000 cc. per day given by the continuous drip method.

CONCLUSIONS

It is only through clear understanding of the physiological responses of the thyroid gland to iodine deficiency that we can comprehend the pathology of goiter and establish sound indications for thyroidectomy.

In the presence of hyperthyroidism the risk of operation depends more on the age, the condition of the myocardium, and on the general condition of the patient than on the severity of the hyperthyroidism as measured by the basal metabolic rate.

Without any essential change in the operative technique, we have effected a steady reduction in the postoperative mortality rate by individualizing the preoperative and post-

operative care of patients with hyperthyroidism. In the past year, in a series of 203 thyroidectomies I have lost one patient, this death occurring in a patient with a severe diabetes and furunculosis; a carbuncle on the face developed and death occurred on the eighth postoperative day.

Each patient with hyperthyroidism is susceptible to certain complications dependent on his age, his emotional makeup, the basal metabolic rate, the response of the pulse curve to preoperative treatment, and the condition of the myocardium. The treatment of each patient should therefore be individualized to allow for the maximum protection against the complication most common to his group. If these complications are anticipated and are treated prophylactically before they develop, the risk of thyroidectomy for severe hyperthyroidism will be diminished.

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CRITICAL ANALYSIS REGARDING PERIODIC PHYSICAL EXAMINATIONS*

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SAYERS,[1] in a recent paper, defines industrial hygiene as the science of preservation of health of workers, and quotes Sir George Newman as follows: "In recent years we have learned that public health is not only a matter of the postponing of mortality and the prevention of sickness, but the positive side of health, the increase of vitality, capacity and efficiency of the human body. Our aim is not only to oppose diseases, but to advance and develop physical fitness and well-being. To secure this end we must have regard to the whole life of man, his heredity and upbringing, his work and rest, his food, his habits, his environment. We must pay attention not only to his actual ailments and diseases, but to the conditions making for a maximum degree of personal health. Thus it comes about that a new relation is found to exist between occupation and health. In a word, the health of the industrial worker forms an integral and inseparable part of the health of the community."

That this broad concept of industrial hygiene stated 20 years ago has not been a mere enunciation without any results, but is an actuality, is evidenced by several plans for analyzing the health problems of certain groups of industrial workers. All of you are familiar with the work carried out on the

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Metropolitan Life Insurance Company employees in New York. Several of the large industrial concerns, such as the members of the automobile industries and steel companies, all have their own programs. Only recently Emerson and Irving[2] published their results of a "Physical Fitness Service" offered to a group of executives, employees, and policyholders of the Aetna Life Insurance Company. Of course, it is needless to say that the railroad organizations were among the leaders in this field of preventive medicine.

ART AND SCIENCE

Since the art of medicine is as essential to good medicine as the science of medicine, neither can be separated from the other in clinical practice. Applying this principle to the management of periodic physical examinations, it should follow that the examination records should be plainly interpretative, and the facts visibly available to anyone who must recheck them. It must be granted, also, that the periodic physical examination is a move toward a final objective; namely, to protect the personal welfare of each and every employee, and help prolong his life by appraising him of his defects soon enough that he can take the proper measures to correct them and in such a manner that the advice given to him will not be cause for alarm. This is practicing the art of medicine, and it has opened to the medical profession the possibility of vast attainment in a hitherto neglected field of preventive medicine.

Those of us who are interested in industrial medicine realize that we cannot be expected to reach a millenium all of a sudden, but must rather feel our way. Therefore, our primary concern is that the employee has what we term average good health, and when we find an employee below par, we so advise him. We are constantly striving to bring the below-average up to the average, and if possible, to raise the average to better than average. It is only humanly natural for those who are able to improve others in their general health to strive continually for that improvement; as an example, we only need to call to mind the progress that has been made in the contagious diseases. We are justly proud of these achievements and particularly so when we stop to consider that we have done so without the need of any outside influence, but mainly through the noble spirit of sacrifice of the members of the medical profession. In many instances to a point where men have laid down their lives to attain their purpose, and to quote "no better love hath man for his friend that he lay down his life for him."

With this thought in mind, that it is ever our lot to strive for improvement in the general health of those who are placed in our care, it was considered worthwhile to make a "Critical Analysis" of the results of our "Periodic Physical Examinations."

It is a generally accepted fact in industry that the most competent and trustworthy employees are men past 40 years of age because of their acquired training and experience. From an economic standpoint, the training of new men in skilled accomplishments is expensive, and it is cheaper for the employer to keep these men in good health, and therefore, keep them at work than it is to undergo the expense of turnover with its resultant upheaval and disaster. Of the 2,106 men examined in 1934, 1,700 were over 40 years of age. Strange to say, most of our real serious breakdowns are in men between the ages of 45 and 55 years of age, and just at the time when they are the most important factor to their families from an economic standpoint. The constant emotional and physical strain of this generation make demands which former generations did not have to undergo. It demands for example, a maximum load function of the heart at all times. Little wonder then that the heart is so frequently played out at forty, and that we find our serious breakdowns just when an employee needs to be at his best.

NEW PROBLEMS TO BE MET

As we have progressed in industry with the developments of new inventions and physical discoveries, there always develop new prob-

lems affecting human physiology which must be met, so with the result of years of research and clinical experience, much progress has been made in the science of nutrition, industrial hygiene, and health education. Therefore, the industrial physician of today recognizes that there are prodromal, or early symptoms of breakdown which call for preventive measures and these are the points which concern us.

Since this is an analysis we must of necessity bore you with figures in order to make a comparison of our results, and since the examinations of 1938, are not completed, we are giving the summary of our examinations as completed in 1937, and comparing them with the results of our first examination completed in 1934, as is shown in Table 1.

TABLE 1. LIST OF DEFECTS DISCOVERED

	No. and Percent			
	1934		1937	
Defects	No.	%	No.	%
Overweight	277	13.	98	5.0
Teeth (pyorrhea, dead teeth)	317	15.	128	6.4
Tonsils. diseased	83	4.0	14	0.7
Blood pressure (above normal)	421	20.0	237	12.0
Glycosuria	33	1.5	35	1.7
Albuminuria	139	6.6	63	3.3
Hernia	79	3.7	65	3.3
Abnormal heart	99	4.0	75	3.8

Since we are merely trying to keep the employees with the average health in mind, we feel that it is more profitable if we can confine our discussions to commonly encountered defects. Therefore, we are presenting the ordinary run of cases rather than rare pathological conditions. The examinations are made by 50 different doctors all along our system and not by one man for the purpose of statistical study to further his own pet theory. What is more, our results coincide with those made on the Erie Railroad on some 12,000 employees since J. Frank Dinnen, supervising surgeon, and the chief surgeon of the Erie Railroad has granted me the privilege of reviewing their results to see how they compare with ours.

The ages of this particular group range from 25 years to 75 years of age so that we have a wide enough range to include the average employee. Furthermore, this is a compulsory examination, and the employee, is therefore, not presenting himself with any complaints of illness, but on the other hand, for fear that he may be disqualified, he is more likely to keep the examining physician in the dark about any of his ailments. We have overcome this tendency considerably since the advent of these examinations by making the men realize that we are interested primarily in their personal welfare, and the only time that a man is removed from service is when he is a danger to the public or those working with him; secondly, if he is a danger to himself.

The analysis of our results in order to have a really critical evaluation demands that all favorable and unfavorable opinions be taken into consideration. Since the examination blank, as most of you men know, concerns the question of vision, first permit me to give you the facts in this regard as shown in Table 2.

TABLE 2. REPORT ON VISION

	1934	1937
Men with normal vision	988	1,383
Vision corrected with glasses	649	1,012
Men that need glasses	428	206
May need glasses	30	0
Visual defects which cannot be corrected	11	10
TOTAL	2,106	2,611

In 1934, out of 2,106 men examined, there were only 988 with normal vision, and 649 whose vision was corrected with proper glasses. There were 428 who needed glasses, and 30 whose vision was questionable as to the need of glasses. In 1937, out of 2,611 men examined there were 1,383 who had normal vision and 1,012 whose vision was corrected with glasses, and we had only 206 men who needed glasses in comparison to 428 in 1934. This despite the fact that we now had over 500 more men examined. For those of you who specialize in the eye, it might be interesting to note that in each instance about 50 per cent of these employees do not have what might be termed normal vision. Is this an unusual condition because these men place their eyes under more severe strain in their

type of occupation, or is this the average finding in the normal individual? If it is, I am sure that we do not find 50 per cent of the people wearing glasses. Or is it because, in the average periodic physical examination, no thought is given to the eyes unless the patient complains of headaches or some symptom which is referable to the eye, and usually by that time considerable damage is done which is beyond repair. This might be a problem for the ophtholmologist to ponder over.

The question of overweight has in recent years been given considerable attention because of its influence in individuals with high blood pressure, and the predisposition of obese people to develop diabetes; also because the heart, kidneys, and liver are prematurely exhausted due to the extra work put on them by the body when it is carrying an excess of fat. Following the report of our results in 1935, a statement was made in my paper[3] that railroaders have good appetites, and it is hard to curb them because we had only 37 men out of 277 who had reduced their weight to normal. At this time we are pleased to report that this figure of 277 of 1934, has been reduced to 98 in 1937, so that your advice to these men in this regard has certainly been helpful to them.

FOCAL INFECTIONS

Sometimes we might wonder and become dubious as to whether focal infections play as large a rôle as we think. Bierring[4] helps to settle this doubt in his (Frank Billings) lecture before the Section on Medicine of the American Medical Association in which he gives us an excellent survey on focal infection during the last 25 years, and in his summary states: "In spite of the critical attitude maintained in certain quarters regarding the continued acceptance of the concept of focal infection, it should be acknowledged that the efforts that have been proposed to detect and then to obliterate all forms of focal infection in the mouth and throat, as well as elsewhere in the body for preventive as well as curative purposes, besides being in accord with sound reasoning from general principles, has received the support of strong experimental evidence." He further shows how careful clinical observations by various internists have substantiated Billings' theory as spoken in 1932: "Focal infection as an etiologic factor of general disease is now an established pathological principle."

DENTAL HYGIENE

That you have stressed the importance of dental hygiene to these men is very well evidenced by the fact that in 1934, there were 317 men who had dental sepsis in the form of pyorrhea or dead teeth, and in 1937, this figure was reduced to 128, or a reduction of 189 in a condition we consider foci of infection. Under this class we also place infected tonsils. In 1934, there were 83 such cases, and the figure was reduced to 14 in 1937.

In order to point out how important it is to rule out foci of infection, it might be well to cite just one very interesting case. An employee, age 51, on his first examination did not show anything except a slight hypertension and a soft boggy type of prostate, for which he was placed under treatment with good results. His second examination a year later showed a marked change in vision in both eyes, and the employee stated that he thought he was going blind in his right eye, so he was referred to Doctor T. W. Moore for a special examination. The report by Doctor Moore showed that this man had a chorioretinitis in both eyes and made the following notation: "He has evidence of arteriosclerosis in both eyes, and the retinal and choroidal changes as stated above, which I think are due to some form of toxemia or focal infection. He should be examined very carefully with special reference to his kidneys, heart, and prostate. He has small imbedded tonsils from which he is getting some absorption." The man was given these instructions, and fortunately for himself, carried them out, and his tonsils were removed. A year later he presented himself for his periodic examination and told me that he was examined by an eye specialist in Indianapolis three weeks ago, which was about a year after the tonsils

were removed, and the specialist told him that he did not have a chorioretinitis. I said that was possible and referred him again to Doctor Moore who reported the following: "The evidence of chorioretinitis shown a year ago seems to have disappeared with the exception of a very small scar above the disc in the right eye. This is a very interesting case and shows what can be accomplished by proper treatment." This case is just one of many which exemplifies how we are attempting to advance and develop physical fitness and well-being by increasing the efficiency of the human body, because here is a man who might probably have lost his vision, and certainly his efficiency in his position.

The question of hypertension is still a rather confusing one, particularly when it comes to any specific method of therapy. Whether Goldblatt's[5] series of experiments demonstrating the production of persistent hypertension in animals by application of a silver clamp to the renal artery will aid us in this regard, or just change the trend of opinion from a primary vasospastic disorder toward the renal origin at the present time, it is difficult to say; nevertheless, he has revitalized Bright's theory. According to his experiments, once the renal clamps are applied, nothing will lower the blood pressure, and the hypertension persists even though the whole sympathetic nervous system be removed. One is tempted to say that if such is the case, the surgical treatment of hypertension which is so popular certainly does not answer our problems. The result of our examinations only helps to make this problem more confusing. In 1934, we had 421 men with blood pressures above normal and in 1937, this figure was reduced to 237, and of this 237 still showing blood pressures above normal, 47 show improvement. In analyzing these results, there are several questions which should necessarily be answered. First what manner of treatment caused a reduction of 184 to a normal reading on our series of cases? Since we have referred these cases to physicians all along our line there was evidently no specific form of therapy followed, and in the usual letter that was returned showing that these men were under treatment, the doctor makes the statement that he has placed the employee under diet and frequent observation. Emerson and Irving, in an analysis of their "Physical Fitness Service", show that this is an important factor in the correction of causes of impaired health, because in their cases of hypertension no prescription was given or drug used. They found that "the most serious faulty health habits as related to hypertension were habitual overfatigue (caused by continuous performance under pressure), excessive intake of calories, and faulty food habits, indoor living and lack of regular exercise, and worry and stress. Several and frequently all of these factors appeared in each case on an analysis of the daily program. A majority of the men examined were readily convinced of their importance and were interested in undertaking their correction." These cases also were kept under frequent observations the same as you have done. In other words, these employees are being taught to live more sanely, and because of this, they are more health conscious.

Other questions which come to mind are what is considered as being above normal and what are the ages in which we found the greatest number with high blood pressure, and did we find that after a pressure reached a certain stage it did return to normal? In anticipation of such questions we tried to make a detailed analysis of these cases of hypertensions and have made up a list of the blood pressure ranges, and found them as set forth in Tables 3 and 4.

TABLE 3. ABNORMAL BLOOD PRESSURE RANGE

Ranges		No. of Cases
140-150	Systolic	12
150-160	Systolic	40
160-170	Systolic	72
170-180	Systolic	53
180-190	Systolic	33
190-200	Systolic	13
200-210	Systolic	6
210-220	Systolic	2
220-230	Systolic	2
230-240	Systolic	4

TABLE 4. HIGH BLOOD PRESSURES ACCORDING TO AGES

Age	No. of Men Examined		No. & % Found With High Blood Pressure			
Years	1934	1937*	1934		1937	
			No.	%	No.	%
25-35	132	128	12	9	5	4
35-45	649	639	71	10	29	5
45-55	773	740	159	20	84	10
55-65	431	383	153	35	97	25
65-75	120	72	38	31	15	20

*There were 148 men not examined in 1937, because of removal from service. Fifty-five of these 148 had hypertension.

In Table 3 you will note that we include blood pressure range from 140 to 150, whereas most insurance companies consider 150 as the low point. The reason for the inclusion of the above is because our normal is considered as 85 plus the age. It is also noticed that a very few cases are in this particular range, and that most of our cases range from 160 to 170, or what might be termed the cases with which we have noted our best results, because this is the usual findings in the early cases of hypertension. In Table 4 you will note there is a definite rise both in the percentage and the number of cases after 45 years of age. This is consistent with our findings that the most serious breakdowns begin at this age, and not as most people think at 60 years of age. We also noted that as the age increases the percentage of employees with hypertension also increases. This is what one would naturally expect, but even with that, there is a return to normal in about 10 per cent of these individuals. In scrutinizing these figures further we found that once an individual's pressure reached 190 or over, it is rare to find that individual's blood pressure has returned to normal, although we did note a definite improvement in a number of these individuals.

In a recent General Motors Medical Conference, C. F. Kettering,[6] director of General Motors research laboratories, made the following statement: "In industry where we work with a chemical balance, delicate machinery and the most exact information in the world, we cannot get any agreement on what data mean, but even at that we do not worry about it." Yet we will admit that the General Motors industry has accomplished a great deal in the last few years on the data they have been able to obtain through research. So it is with us here, we may not agree on what these data mean, nevertheless, we feel that our physicians along our system are accomplishing a great deal in preserving the health of workers, if only in teaching these employees how they can take care of themselves so that they will live longer.

SNOW'S SURVEY

Snow,[7] the medical director of one of the General Motors division plants at Dayton, Ohio, made a survey covering 5,675 employee in their plants which is very interesting and instructive. He noted that only two deaths during the first year of employment were attributed to chronic diseases, and bases this on the efficiency of the entrance of pre-employment examinations. However, in the group employed more than ten years cardiovascular diseases accounted for two-thirds of the deaths. Since the men you examine are all over the entire system we are not able to correlate any such data regarding deaths, but our examinations do show that out of 148 men disqualified for all services, we had 72 with abnormal heart action. At the last examination we found 75 men, who are still in service, with abnormal heart action. These 75 have had recheck examinations to determine the extent of their abnormality to be sure they are not a hazard. In 1934, we had only 99 men with abnormal heart action, whereas the 72 removed from service plus the 75 still in service with abnormal heart action, equals 147. Is this because you doctors are paying more attention to the heart in these examinations, or is it because the men are now three years older than at the time of their first examination? We like to think it is the former reason, and in this regard, it might be pertinent to add that with the recognition of coronary disease in the early stage, a history of the man's subjective complaints is very important. Of course, we realize as stated before, the employee is going to attempt to hide his complaints because he fears

for his job, but we feel that if you stress the point that you are merely trying to prolong the life of the employee, he will volunteer information in his history to you providing the doctor will only take a few extra minutes to listen to his story, and I think it well in view of our knowledge of coronary disease, not to dismiss too lightly, but rather to view with suspicion the history of attacks of indigestion in any man past 45 years of age.

DIABETES

Since a great deal of attention is being given to diabetes in lay magazines the average layman gets the impression that this disease is on the increase, and many of our employees are more health conscious in this respect, and are, therefore, anxious to know the results of their urinalyses, so this phase of the examination becomes an important part of it; therefore, no routine examination should be complete without it. Most of us feel that there should be no necessity to make any such statement, nevertheless, it has come to our attention recently that some men do not feel it necessary to examine the urine for sugar unless the specific gravity is above 1.026. The fallacy of such an attitude is well exemplified in our observations. In 1934, there were 33 cases with glycosuria, and in 1935, we found 35 such cases and in only a few did we find the specific gravity above 1.026, but on the contrary, in several cases found the specific gravity to be 1.012. This may be due to the fact that you have found these cases in the very early stage, and have placed the men on treatment for their condition so early as to prevent further degenerative changes in the pancreas. Our reason for this statement is that of the 35 cases noted, there are only three who have had to institute insulin treatment for their condition, and the other 32 are carrying along very well under a dietary regime.

That the urinalysis is an important factor is also borne out with regard to the detection of early kidney disturbances. In 1934, there were 139 cases with traces of albumin in the urine and in 1937 this was reduced to 63 cases. Other genitourinary disturbances have been discovered in these examinations, such as abnormalities of the prostate, but in view of the fact that routine prostatic examinations are not made by all the doctors on our system, we are unable to make a correlated study of this subject. However, the history or urinalysis disclosed sufficient evidence that further study should be made of the prostate in a number of cases. Since the greater percentage of our men are over 45 years of age, it might not be amiss to suggest that an examination of the prostate be made routinely in all of these examinations.

Our previous experience with the problem of hernia might be restated. In 1934, there were 79 hernias detected, and in 1937, there were 65, and since most of these were found in men past 55 years of age, and in the majority of cases the doctor returned a letter stating that it was inadvisable to operate or that the man is wearing a good supporting truss, we felt that this might explain the small decrease in these cases.

NEUROLOGICAL PROBLEMS

Neurological problems strictly speaking, are under the domain of the neurologist, nevertheless, they concern us considerably because, in our examinations, we are dealing with men who must be alert mentally at all times, and if they are not, they are a potential danger and hazard because of any stupidity, dullness, or emotional instability. These defects may be revealed by history, questioning into schooling and vocational history. Frequently these employees get by in examinations because they will make every attempt to conceal any disability such as epilepsy or tabes in its early stages, but on the other hand, they can be detected by checking into certain vasomotor changes; for example, polyuria, tachycardia, and other nervous manifestations such as tremor, spasms, tics, sensation, and finally an opthalmoscopic examination may reveal some evidence. It goes without saying that the deep and superficial tendon reflexes also might tell a story. What is more, unequal pupils do not necessarily have to have a

luetic origin. This condition might also be the result of tuberculosis due to a change in the sympathetic system on account of the fixation of the apical pleura from adhesions. That the most of you are conscious of the vital importance of this part of the examination is well evidenced by the fact that we have detected several unusual cases of neurological significance. These comprise brain tumors, epilepsy, tabes dorsalis, anemia with cord changes, and toxic goiters, which show what actually can be accomplished by the simple neurological tests and history questioning.

Since the aim of public health in industry is not only to oppose disease, but to advance and develop physical fitness and well-being, an analysis of the health problems affecting our employees, such as we have attempted to place before you, show the results that you, as physicians along our system, have accomplished in these examinations toward these principles and preservation of the health of these employees. So if these figures have bored you, just remember it was necessary to show how much good you are doing in your work. Furthermore, since we must have statistics, it is also well to recall the advice of one of our foremost medical teachers—Osler: "Observe, record, tabulate, communicate. Use your five senses. Record, make a note at the time, do not wait. Do not waste your time in compilation, but when observations are sufficient, do not let them die with you. If you have the good fortune to command a large clinic, one of your chief duties is the tabulation and analysis of the carefully recorded experience. He who works in his own small compartment leads a restricted and circumscribed life. Go out among your fellows and learn from them."

CONCLUSION

Since this summary has followed this sage advice, you, as physicians, along our system, may credit yourselves with the glory of these results. You were the ones who observed and recorded, we merely tabulated, and are now communicating. You were the ones who used your five senses and made the record at the time. We did not waste time in allowing your information to compilate, but felt that observations were sufficient, and we have attempted to analyze your carefully recorded experience with the thought in mind that our Chesapeake and Ohio Railway physicians have contributed to the science of the preservation of the health of workers and thereby helped to protect the personal welfare of each and every employee, and prolonged his life.

DISCUSSION

Dr. G. S. Hartley, Clifton Forge, Va.: In the discussion of Dr. Brandabur's paper, it goes without saying that it is timely and to the point. The same paper could well be applied to other than industrial medicine, for the best life insurance policy is a thorough physical examination once a year. If you have some physical defect, twice a year is none too often.

Industrial medicine has possibly not taken its place with other branches of medicine, but it is becoming more firmly grounded in industry than ever before because industry realizes that the loss is not only in time and dollars and cents, but in illness of employees. This aptly applies to railroad men at the present time, especially to enginemen and their helpers.

Dr. Brandabur stated the records of physical examinations should be available and open to anyone who rechecks them and should be plainly written, amply covered, show sensible deductions of findings, and be in as few words as possible. An examiner must have the welfare of the employee in mind, not only to keep him fit for work but to tell him of any defects that can be corrected and, in this way, help him to return as nearly as possibly to a normal physical well being. This cannot be accomplished at once but we must rather feel our way.

When the policy of physical examinations was first inaugurated, there was fear among employees that they were being examined to be retired or taken out of the service. When they first appeared for an examination, usually the first question was: "What is this all about?" But by taking time to explain the procedure to each employee, each readily understood the reason and consented at once to the examination. Usually the first question asked after the examination was: "Am I all right?", and when you take time out to explain any defect that can be

remedied, the usual reply was: "I will attend to it as soon as possible."

As stated in Dr. Brandabur's paper, the most competent and trustworthy employees are past 40 years of age, because of their required training and experience. After this age there is a gradual physiological decline and any defect that can be remedied at this time and any instructions given an employee helps him to ward off impending danger and no doubt prolongs life.

Dr. Brandabur has covered the questions necessary to ask each employee in taking the history. There may be some who fear the examination and will be evasive, especially on eyesight and hearing, but if handled patiently you can gain their cooperation, and when they find their troubles have been corrected, they are very appreciative of what you have done. I recognized this fourteen years ago when they first started the examination of trainmen for eyesight, color perception, and hearing. It was surprising to find the number with defective vision who had improper glasses, and whose hearing was impaired by not taking proper care of the ears.

It is hardly necessary for me to mention the various defects such as heart disease, hypertension, and diabetes, as you are all familiar with these complaints and their effects on human society. Overweight and overeating are the most frequent causes of heart disease, hypertension and kidney failures. Some years ago I presented a paper before this society on "Hypertensive Heart Disease and Hypertension." The foremost etiological factor brought out was overeating. It is rather simple to reduce weight without starvation and this often relieves patients of many of their ills and physical complaints.

The tabulations by Dr. Brandabur from 1934 shows the fruits of industrial medicine and hygiene and will continue to do so as long as the present employees are in service. Since the inauguration of physical examination before employment, the figures will drop materially, and there is a possibility that examinations will be less frequent except in those patients past seventy years of age.

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SODIUM SULFAPYRIDINE

Because the very slight solubility of sulfapyridine in water renders intravenous (vein) administration of this drug difficult when a route other than by the mouth is desired, E. K. Marshall, Jr., M. D., and Perrin H. Long, M. D., Baltimore, in *The Journal of the American Medical Association* for April 29, recommend the soluble sodium salt of sulfapyridine for such cases.

The poor and more erratic absorption of sulfapyridine from the gastrointestinal tract as compared to sulfanilamide necessitates the intravenous method for the former in certain cases in which high concentrations in the blood are desired.

The potential dangers associated with intravenous medication are not forgotten. Hence the intravenous use of sodium sulfapyridine should be limited to conditions in which oral administration is impossible or is not sufficient for successful treatment.

The authors' use of the intravenous injection of sodium sulfapyridine has been limited to the treatment of pneumococcic lobar pneumonia. They state that in mildly or moderately ill adult patients it is their practice to administer an immediate dose of sulfapyridine by mouth. Then maintenance doses are given orally at intervals of four hours until the patient's temperature has been normal for at least forty-eight hours. A reduced dosage is then given every six hours until resolution of the pneumonic process is well under way. The dose is then further reduced and is given four times a day until the lungs are clear.

If, however, the patient seems to be severely ill, the sodium salt of sulfapyridine is given by the intravenous route. The dose is calculated on the basis of body weight. The drug should be injected slowly. The correct dose for the patient's weight may be repeated at intervals of from six to eight hours. Oral administration of sulfapyridine should be started at the time of the intravenous treatment. Rarely was it necessary for the authors to give more than two injections of sodium sulfapyridine.

The intravenous use of the sodium salt is also effective in patients who are vomiting because it maintains the desired blood levels.

THE GASTROINTESTINAL ASPECTS OF DEFICIENCY DISEASE *

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VITAMINS are present in our ordinary daily foods in minute quantities. They are quite as important in maintaining normal health as other food constituents. Although affections occurring as the result of vitamin deficiencies have long been known, it is only within the past few years that these disturbances have received the attention they actually deserve and thus have now become more clearly understood.

Our knowledge has gradually been increased since the vitamin theory was first postulated through chemicobiological studies so that today it is possible to present a fairly comprehensive picture of many problems relating to this subject. Yet our knowledge is far from complete, but with advancing studies many new facts are constantly being developed while our views regarding others, already recognized, have been modified.

As a result of these investigations certain vitamins have been obtained in pure form and their chemical structures determined. Further studies have likewise resulted in the development of chemical tests for the detection and quantitative determination of vitamins present in any foodstuff or organ in the body.

Inasmuch as the nutrition of the body is maintained through the process of digestion, a close relationship must necessarily exist between disturbances of the gastrointestinal tract and deficiency disease. McCarrison,[1] many years ago, presented evidence of the high incidence of gastrointestinal disease in monkeys subjected to diets deficient in vitamins. He demonstrated from pathologic studies that vitamin deficiencies induced atrophy of the mucous and muscular layers of the gastrointestinal tract as well as enteritis and degeneration of the mesenteric plexus of Meissner.

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The demonstration of the relation of disturbances of the digestive tract to dietary deficiency was however more strikingly pointed out by Castle[2] in 1928. He presented very definite evidence that an absence of certain constituents in the gastric secretion could produce a state of dietary deficiency even in spite of the intake of a diet usually considered adequate. With this advance our knowledge of avitaminosis in relation to certain disturbances of the digestive tract has rapidly increased. It was shown that such affections as pernicious anemia, certain other forms of macrocytic and hypochromic anemia as well as polyneuritis and pellagra are entirely or largely due to deficiency states resulting from disturbances in the digestive tract.

The observations of Castle[3] and his coworkers have demonstrated that pernicious anemia is a deficiency disease in which the deficiency is not the result of a deficient diet, but due to an absence in the gastric juice of a specific intrinsic factor. While an achylia nearly always precedes and is an almost constant accompaniment of pernicious anemia, its etiologic relationship with the intrinsic

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factor is still not clearly understood. There are instances of pernicious anemia with free HC1 in the gastric contents and others in which free HC1 has been absent and has returned. Furthermore, there are many cases of achylia gastrica without pernicious anemia. Nevertheless it has been demonstrated most conclusively that the intrinsic factor cannot be HC1 or the gastric ferments.

Strauss[4] and others have called attention therefore to the fact that pernicious anemia must be considered as an unusual type of deficiency disease in which the deficiency is due to an absence of a specific intrinsic factor in the gastric juice. While the absence of the intrinsic factor in pernicious anemia is largely the essential defect in the development of the disease, there is likewise a lack of an important extrinsic factor. The extrinsic factor is a substance somewhat related to vitamin B^2 (G) though the two are by no means identical. It occurs in various foods such as beefsteak and is likewise present in wheat germ, rice polishings, eggs and liver.

According to Castle and his co-workers, pernicious anemia must be recognized as a deficiency disease not due to the usual dietetic imbalance, but arising as the result of a conditioned deficiency, that is conditioned by an abnormality of gastric secretion which is responsible for a state of dietary deficiency irrespective of the adequacy of the diet.

MACROCYTIC ANEMIA OF PREGNANCY

Moreover, it is interesting to note that the macrocytic anemia of pregnancy may be largely induced by a temporary lack in the gastric juice of the intrinsic factor as well as by an absence of the extrinsic factor. This may likewise occur in the macrocytic anemia of the tropics and in some instances of sprue. In pernicious anemia and certain types of sprue there is largely an absence of the intrinsic factor while in a number of other affections of the deficiency type as in certain other instances of sprue and pellagra there is mainly a lack of the extrinsic factor. Wilbur and Snell[5] point out that inasmuch as a large number of mechanisms differing to a marked degree are involved in the development of deficiency disease, it may be difficult to determine at times the part which the gastrointestinal tract itself plays.

They offer the following classification which presents the various etiologic factors involved in the development of deficiency states from the point of view of the gastrointestinal tract and the rôle it plays:

1. Inadequate intake of food.
2. Loss of essential secretions or of food.
3. Lack or decreased production of essential endogenous substances.
4. Inadequate intestinal absorption.
5. Alteration in metabolism.

INADEQUATE INTAKE OF FOOD

Inasmuch as food contains the essential vitamins necessary to maintain good health an inadequate diet frequently results in a deficiency disturbance of more or less severity. In this category may be classified those individuals whose food intake is inadequate through lack of appetite due to actual disease or as the result of functional disorders. Many of these individuals are the victims of food faddism. Moreover, imaginary or nervous digestive disorders or such factors as supposed overweight may lead them voluntarily to omit one foodstuff after another until the intake is inadequate to maintain normal health.

It is well that a word of warning be given to the physician himself, who at times may prescribe a diet which is so restrictive that the essential food factors may be entirely insufficient. This is known especially to occur in individuals affected with digestive disturbances of one kind or another and in those subject to allergic reactions.

The affections which occur most frequently as the result of inadequate food intake are pellagra, certain types of multiple neuritis and beriberi, not to mention many others with which we are all familiar.

In addition many incomplete or occult types of vitamin deficiencies due to inadequate food intake occur associated with indefinite

clinical manifestations. These are often difficult to evaluate and when allowed to progress will finally eventuate into characteristic deficiency disease pictures. Attention has already been directed to the chemical measures employed for the detection of vitamin deficiencies. By these means diagnoses can be made when the deficiencies are in their early stages and measures can be instituted to inhibit their progress.

LOSS OF ESSENTIAL SECRETIONS OR OF FOOD

This second type of deficiency disease in Wilbur and Snell's[5] classification occurs usually as the result of nausea or vomiting notwithstanding the intake of an adequate vitamin-containing diet. As an illustration, one may point to the vomiting and diarrhea occurring in the alcoholic form of pellagra which Spies and DeWolf[6] have shown is identical with the pellagra observed in the southern states. An avitaminosis occurs as the result of the persistent vomiting and diarrhea because an adequate amount of vitamins required for the body is no longer retained.

LACK OF ENDOGENOUS SUBSTANCES

Wilbur and Snell classify under this heading the deficiency states due to an absence, or an insufficient amount, of necessary substances ordinarily formed in the digestive tract even in spite of an adequate intake. We have already called attention to the absence of normal gastric secretion in pernicious anemia. Similarly an absence of a normal discharge of bile, pancreatic juice or intestinal secretion may occur. As an example, attention may be directed to the forms of anemia of the hypochromic type in which a disturbance of the absorption of iron occurs due to an absence of HC1 from the gastric secretion.

INADEQUATE INTESTINAL ABSORPTION

Disordered intestinal absorption is now fully recognized as a very important factor in the development of deficiency states. This may occur as the result of disease of the intestine itself as in aggravated forms of enteritis or from stricture of the bowel as well as from disease or obstructive lesions of the stomach itself.

Strauss[4] has collected 15 cases of pellagra from the literature which were secondary to cancer of the stomach and usually associated with pyloric obstruction. Pellagra has also been noted following cancer of the terminal ileum. Rectal stricture has likewise been observed associated with the same deficiency disease. That such lesions are actually etiologic factors in deficiency disease of this type has been demonstrated by the fact that the necessary vitamin when administered by mouth remains wholly ineffective, but is effective when given parenterally.

ALTERATIONS IN METABOLISM

Wilbur and Snell[5] are under the impression, which needs corroboration, that changes in the metabolic activity of certain of the digestive organs may predispose to the development of a deficiency state. They point out that inasmuch as the liver is mainly involved in the conversion of carotene to vitamin A and inasmuch as the vitamin is largely stored in this organ, it is readily conceivable that extensive lesions of the liver might be followed by a vitamin A deficiency.

From the preceding statements it is evident that the digestive tract may play a most important rôle in bringing about a predisposition to, as well as in conditioning the organism for certain deficiency states. However, it is impossible to determine at this stage of our knowledge the exact rôle which the gastrointestinal tract plays in many instances. A number of disturbances of the gastrointestinal tract may, as we have enumerated, predispose to such deficiencies. In some instances they may act singly; in others, in various combinations.

The foregoing knowledge is necessary before any specific discussion of vitamins should be undertaken. Of the various vitamins the following are associated with digestive affections: vitamin A, vitamin B complex, vitamin C, vitamin D and vitamin K.

VITAMIN A

It is now known that carotene is converted into vitamin A in the liver and stored there as the vitamin. The preparation of the vitamin in crystalline form from fish liver oil as well as by synthesis has been accomplished recently by Holmes and Corbet.[7] It has been observed that extensive liver destruction leads to a vitamin A deficiency. The association of obstructive jaundice with manifestations of vitamin A deficiency has been described. It has been suggested that the absence of bile prevents the absorption of vitamin A.

Among the structural effects associated with vitamin A deficiency are changes in the salivary glands, pancreas and esophagus as well as the imperfect development of dental structures. Manville[8] found that the number of mucus-secreting elements of the intestinal tract decreased as the result of vitamin A deficiency exposing the mucous membrane to injury from solid components of the food and feces. Occult blood in the stools was the earliest evidence of deficiency of vitamin A. An important effect of vitamin A deficiency is that upon the epithelial structures; a keratinizing metaplasia in the gastrointestinal tract as well as in other structures of the body is produced. This type of avitaminosis likewise prevents growth, causes loss of appetite and weight, and deranges digestion.

Vitamin A can be prescribed in many foods in which it is present as fish liver oil or as carotene. Thin green leaves are among the best sources of vitamin A. Of the foods of animal origin, eggs, whole milk and milk products are the important sources. The vitamin itself is most satisfactory for oral administration; crystalline carotene is advisable for parenteral employment.

VITAMIN B COMPLEX

Vitamin B complex is recognized to consist of a number of components but we are primarily interested in vitamin B I, the antineuritic factor known as thiamin and in the vitamin B^2 complex containing riboflavin, essential in the oxidation-reduction processes of the body cells, and the P. P. (pellagra preventing) factor.

VITAMIN B_1

Thiamin deficiency is chiefly associated with the polyneuritis especially observed in alcoholic addicts, due, as has already been mentioned, to inadequate food and vitamin intake, and with the polyneuritis associated with beriberi. B^1 avitaminosis is likewise noted in certain organic and functional gastrointestinal disturbances and is frequently intimately connected with such conditions as atrophy of the tongue, achlorhydria, loss of weight, anorexia, pernicious vomiting of pregnancy, hypotonicity and hypomotility of the musculature of the small intestine and nervous gastrointestinal manifestations. Fitts[9] observed it associated with flatulency, constipation and intestinal fermentation, which could be overcome by its administration. Moreover it is a helpful adjuvant in the treatment of certain cases of portal cirrhosis. As is now well known, subclinical types of vitamin B deficiency may be present without definite evidence of the presence of polyneuritis or beriberi or any group of noteworthy symptoms.

It is also known that vitamin B_1 is absorbed rapidly in both the small intestine and colon. According to Cowgill[10] this may account for a deficiency in individuals with poor absorption or with symptoms of vomiting or diarrhea which similarly make it impossible that an adequate amount of the vitamin will be absorbed. Cowgill states that vitamin B_1 is synthesized by certain bacteria in the bowel, especially by the colon bacillus, and is thus made available for absorption.

Vitamin B^1 can now be obtained in pure form as thiamin. This substance is readily absorbed when administered by mouth. When not retained in adequate amounts due to vomiting, diarrhea or lack or absorption, it may be given effectively by the parenteral route. Thiamin is indicated in the treatment of all of the various manifestations of B^1

avitaminosis. Strauss[11] has recommended brewer's yeast as a convenient method of administering B^1 and other portions of the vitamin B complex.

VITAMIN B_2 COMPLEX

This complex contains among others the two distinct components, riboflavin and the pellagra-preventive factor. Riboflavin has been isolated and synthesized. It is recognized as essential in the oxidation-reduction system occurring in the living cells. The pellagra-preventive factor has likewise been isolated and identified as nicotinic acid. According to Elvehjem[12] and his co-workers, Fouts and his co-workers[12] and Schmidt and Sydenstricker[13] nicotinic acid is the active agent of the P. P. factor. It has been demonstrated that its administration cures black tongue in dogs (the canine equivalent of human pellagra). It is especially potent in the mucous membrane lesions of pellagra. A deficiency of this vitamin may also lead to nausea, vomiting, diarrhea, soreness and inflammation of the tongue and other digestive disturbances. Attention has already been directed to the fact, that pellagra has been observed in individuals affected with carcinoma of the stomach, pyloric obstruction, cancer of the colon and ulcerative colitis due to an inability to absorb adequate nutriment containing the P. P. vitamin.

Nicotinic acid may be administered both orally and parenterally in the treatment of this type of avitaminosis. However, the dosage has as yet not been definitely established nor is its specificity for the entire pellagra syndrome, according to Sydenstricker,[13] fully established.

VITAMIN C

Vitamin C has long been recognized as an antiscorbutic agent and utilized in the form of lime juice for this purpose. It was isolated in crystalline form by Szent-Gyorgyi in 1928 and in 1932 was synthesized by Reichstein. The synthetic product—vitamin C—is known as cevitamic or ascorbic acid.

While well developed forms of scurvy are now rare, sporadic cases are occasionally observed especially in children. However, subclinical or milder types of scurvy, recognized as vitamin C deficiency, are not uncommon.

The gastrointestinal lesions associated with vitamin C avitaminosis are few. The dentin ceases in growing teeth, the pulp becomes separated from the dentine and the gums become spongy and bleed as a result of this deficiency. Hemorrhagic infiltration of the bowel wall has likewise been recorded. Lazarus[14] has observed instances of peptic ulcers with hemorrhage and melena in which a study of the diet disclosed its deficiency in vtiamin C. There is no direct evidence, however, that vitamin C deficiency favors the onset of peptic ulcer. On the other hand, it is well known that many patients affected with peptic ulcer with or without hemorrhage are undernourished generally, as well as with respect to vitamin C. In these cases administration of vitamin C in the form of cevitamic acid will often bring about a favorable response. As hemorrhage is one of the prominent features of scurvy it has been suggested that a lack of vitamin C in the diet may predispose to hemorrhage. Rivers and Calson[15] actually noted that in some instances of peptic ulcers with hemorrhage the cevitamic acid content of the blood and urine was below normal. There is evidence therefore that its use in patients with such ulcers is indicated.

Wright[16] states that in some instances ulcerative colitis may result from a vitamin C deficiency. Clark[17] reports an instance of this affection in a girl of 13 years resulting fatally and concludes that the avitaminosis and marked wasting were the results of an inability to absorb nutriment from an intestinal tract in which the mucous membrane had been largely destroyed by an ulcerative lesion of an infectious nature. There is further evidence that the administration of vitamin C in some instances of ulcerative colitis results in general improvement and a decreased tendency to bleeding.

Other conditions as certain gum infections, anorexia, undernutrition and hemorrhage from the mucous membranes may be bene-

fited by cevitamic acid if it is definitely established that they are the result of a vitamin C deficiency.

Clinical diagnosis of this vitamin deficiency may be arrived at by a study of the blood plasma and urinary excretion tests. In all such instances of avitaminosis the treatment consists in the restoration of the patient's nutrition by means of a high caloric or high vitamin diet. If found necessary, cevitamic acid may be administered in appropriate dosage and if not retained or absorbed it may be given parenterally.

VITAMIN D

Vitamin D, the antirachitic vitamin, plays a minor rôle in its relation to the digestive tract. A deficiency of this vitamin is uncommon in adults and occurs mainly as a complication in such affections as interfere with food absorption. The teeth in this deficiency reveal pathologic changes consisting mainly of caries, irregularities in position, shape and size.

VITAMIN K

The lack of the antihemorrhagic vitamin K, recently isolated by Doisy from alfalfa meal oil, results in a reduced prothrombin content in the blood and its administration appears to restore the clotting time to normal.

Butt, Snell and Osterberg[18] administered vitamin K and human bile or animal salts to patients with obstructive jaundice with a rapid and striking decrease in the prothrombin time to within normal limits and in this way were able to prevent hemorrhage in certain cases.

SUMMARY

Recent studies of vitamins have added much to our knowledge concerning this intricate subject in its relation to the digestive tract.

Although considerable advance has been made many new and difficult problems constantly arise requiring solution, and others which at times seemed solved, demand further study. Reinvestigation may be required due to the isolation of a number of vitamins recently in pure form. The relationship between gastrointestinal disturbances and deficiency disease may be reciprocal. It is well established that many disorders of the digestive tract may lead to deficiency states, while deficiency disorders may terminate in disease of the digestive tract.

Since vitamins are always present in our food, any deficiency of these substances or any alteration in the function of or any disease in the gastrointestinal tract may promote an avitaminosis of more or less severity.

Vitamin deficiencies have now assumed such importance in relation to the digestive functions that the possibility of their presence must be constantly recognized in the treatment of gastrointestinal disorders.

In the treatment of patients affected with digestive disturbances care should be taken not to restrict food intake. Moreover, any interference with its utilization or absorption must be guarded against in order to prevent states of avitaminosis.

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THE THYMUS GLAND IN INFANTS AND CHILDREN*

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According to Stoeltzner, of Konigsberg, the word 'thymus' has nothing to do with the Greek word 'thymos' or 'courage', but the gland was so named because of its similarity in appearance to the buds of the thyme plant.

ANATOMY

The thymus develops from the endoderm and is an epithelial organ, yet even during intrauterine life the epithelial cells are progressively replaced by lymphoid tissue until at birth all that remains of the epithelial structures are Hassall's corpuscles. These, with a small amount of interstitial and reticular connective tissue, make up the network of the gland. The main part consists of lymphoid tissue.

How long the thymus continues to grow after birth gives rise to much controversy. Friedleben and Hart say it is to the end of the second year. Hammar believes it grows to between the tenth and fifteenth years. John Thompson,[7] of Edinburgh, claims there is no growth after the first year; Garrod, Batten, Thursfield and Paterson,[2] after the second year. Gray's Anatomy[1] states "the thymus is a temporary organ, attaining its greatest size at the time of puberty, when it ceases to grow, gradually dwindles and almost disappears." Racial differences may be a contributing factor, as well as the climate in which the individual resides.

The argument as to the normal weight of the thymus gland continues. Hammar placed it at twenty-five grams at birth, and fifty grams at puberty; Friedleben, fourteen grams at birth and twenty-seven at puberty. Bovaird, Thursfield and Dudgon place the birth weight at six or seven grams and consider anything under ten as normal; Gray's Anatomy[1] gives fifteen grams at birth and thirty-five at puberty as normal; which is about the same as Wolf[6] places it.

Macroscopically, the thymus consists of two reddish grey lobes, a right and left, generally varying in size. These may be united in a single mass or may be connected by an intermediate lobe. The surface is soft and lobulated with depressions corresponding to the projecting portions of the surrounding structures. It lies beneath the manubrium sterni in the anterior mediastinum, partly in the thorax and partly in the neck, and extends from the fourth costal cartilage upward to the lower border of the thyroid gland, on the front and to the sides of the trachea.

PHYSIOLOGY

The general belief is that the thymus is relatively larger at birth than at any other time. It does not maintain its original proportion to the other parts of the body, undergoing atrophy after puberty; so that in later life only a small amount of the gland remains.

*Read before Mercer County Medical Society, September, 1938.

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Why the gland develops and then undergoes involution is not understood, although it is agreed that the adrenals and gonads have some influence upon it. In cases of castration in the young the thymus persists, and in cases of persistent thymus the development of the secondary sex characteristics is greatly delayed. Removal of the adrenals produces similar results. That is, the thymus does not undergo involution.

The thymus is usually enlarged in cases of general lymphoid hyperplasia (status thymicolymphaticus); and undergoes involution during infections, starvation, and conditions which bring about a loss of weight.

The incretory function of the thymus is far from being clear. However, we do know there is a direct connection with growth. This has been proven by recent experiments of Rountree who produced more rapid growth, larger litters, and a lower mortality rate in rats, by injecting the mothers with a thymic extract. Rountree[9] also demonstrated a positive relation to calcium metabolism by proving that thymectomized chickens lay shell-less eggs; and, further, that fractures in thymectomized animals are much longer in healing. One might classify the known functions of the thymus as: (1) influence over growth; (2) control of calcium metabolism. The thymus may have something to do with producing lymphocytosis and nuclear synthesis; and it is highly probable that it is connected in some way with mental development since autopsies on mentally defective children have shown an absence of the thymus in over 70 per cent.

Hyperplasia of the thymus alone is called status thymicus. If the entire lymphatic system is involved, it is known as status lymphaticus or status thymicolymphaticus.

ETIOLOGY OF ENLARGED THYMUS

There is frequently a familial tendency to this condition. We have seen a family of four children in which three were found to have enlarged thymus glands. In another family of five children all have had large thymi. Two of them died very suddenly with no previous sickness, and were considered thymic deaths.

In the cause of deaths attributed to enlarged thymi we again face many theories. These have recently been summarized by Marine:[15]

"(1) That of Paltauf[21] and Wiesel.[22] That death is due to a constitutional defect manifesting itself through an injurious raising of the vagus tone, together with a deficiency of the chromaffin system and weakness of the sympathetic system.

"(2) That of Kundrat[23] and Blake.[24] That death is due to a hypersusceptibility to physical and chemical agents.

"(3) That of Symmers.[25] Anaphylaxis.

"(4) That of Svehla[26] and Escherich.[27] That death is due to an abnormal thymic secretion with a resultant general lymphotoxemia.

"(5) The theory of Jackson,[17 18 19] Kopp[16] and Noback[20] seems to be the most popular and the one which I think is the true explanation of the cause of death; that is, of pressure of an enlarged thymus upon the trachea, blood vessels or nerve trunks. Jackson has, in my opinion, proven this by the use of the bronchoscope. He thinks that the thymic deaths or those due to status lymphaticus while under an anesthetic are due to engorgement of the thymus brought on by coughing, choking and hard breathing, which jams the engorged thymus into the upper orifice of the thorax which is a rigid ring, causing compression of the trachea, asphyxia and death. After death, engorgement is depleted and at autopsy the thymus is no longer compressing the trachea. Röentgenologic studies of Pancoast[12] have proven that the thymus is pushed upward during expiration and is jammed into the thoracic inlet and causes compression on the trachea, vessels and recurrent laryngeal nerve."

SYMPTOMATOLOGY

In the past few years, since the physicians and laity have become more or less thymus conscious, I feel the thymus has received credit for a great deal for which it has not

been responsible. According to the theory of Jackson, Kopp, and Noback, most of the symptoms are referable to the respiratory, cardiovascular and neurological systems.

The cardiovascular collapse may be due to the failure of the adrenals, which are closely hooked up with the thymus, and also by pressure on the vagus nerve.

The neurological symptoms are brought about by pressure of the engorged thymus upon the recurrent laryngeal nerves as they pass through the thoracic inlet. Boyd thinks that the inspiratory stridor, hoarseness, and crowing cry may be due to spasm of the vocal cords from irritation of the recurrent laryngeal nerves. Jackson thinks that if bilateral paralysis is present, death will result very rapidly.

The respiratory symptoms are brought about principally by a tracheal stenosis. The thymic stridor may be present at birth or may develop in a few weeks. In the milder form the stridor may be a slight respiratory difficulty, loudest at the end of inspiration as in crying or screaming, and much more faint during sleep. In the more severe forms it is present during both inspiration and expiration; inspiration sounding like a crow and expiration like a cluck. The symptoms seem to be exaggerated in the upright position, which unfortunately is the position in which most mothers place the child when they think it is choking. The condition may be present for months, with only mild symptoms; or it may suddenly become severe from no greater cause than a change of position or excitement.

Usually the thymic stridor is aggravated by an acute infection such as bronchitis, whooping cough, diphtheria, or pneumonia, and may progress to the point of suffocation. During these attacks there is much inspiratory difficulty, dyspnea and brassy cough; the head is thrown back, the face has an anxious appearance and is cyanotic or pale. The pupils are dilated. There is retraction in the suprasternal and epigastric areas. The child is suffocating.

Why do we have thymic deaths under anesthesia? Jackson says they are brought about by arrested respiration due to obstructive pressure of a temporarily engorged thymus. Artificial respiration is ineffective as air cannot be drawn into the lungs, although it can be forced out. After death the temporary engorgement subsides and the pressure is relieved. This accounts for the occasional case reviving after prolonged artificial respiration.

DIAGNOSIS

Enlarged thymus glands are much more rare than we usually think. Feer in Europe has seen only one; Finkelstein, none; Stoeltzner, of Konigsberg, none. In the presence of the symptoms just mentioned, the röentgenologist should be consulted for final diagnosis; and his opinion should not be based merely on an anteroposterior view, showing a widened flat thymus. Laterals should also be taken. It is not the width, but the depth of gland that is important in this connection.

The röentgenologic signs of an enlarged thymus according to Pancoast, Pendergrass, Bromer, et al,[10] are:

1. Lateral deviation of the trachea, established by the sagittal view.
2. Narrowing of the trachea at the thoracic inlet during inspiration and determined by lateral view.
3. More than the normal amount of collapse at the thoracic inlet at the expiratory phase.
4. Buckling of the trachea at the thoracic inlet at either phase.

In other words, there must be compression or kinking of the upper intrathoracic trachea which can be shown only by inspiratory and expiratory lateral views or by bronchoscopic view showing the lumen of the trachea to be crescentic instead of rounded.

DIFFERENTIAL DIAGNOSIS

Foreign Bodies: The only difficulty encountered with these is when they are nonopaque. If in the trachea, there are signs of expiratory obstruction. If below the bifurcation, they are similar to those of atelectasis, pulmonary edema or obstructive emphysema.

Retropharyngeal Abscess: By the history, manual examination and the x-ray.

Asthma: Family history, physical examination and the x-ray which will show that the patient has no enlarged thymus.

Allergy: Since a great percentage of infants with thymus enlargement are allergic, the administration of vaccines and serums must be considered.

Congenital Heart Disease: A history of cyanosis at birth with signs of congential heart disease with thrills and murmurs over the precordial area suggest this possibility.

Pericarditis: By x-ray, the pear-shaped configuration and history of infection.

Congenital Atelectasis: By symptoms, physical examination and x-ray.

Mediastinal Tumors: These remain stationary during both phases of respiration, whereas the thymus moves down during inspiration and up during expiration.

Lymphosarcoma of Thymus: By its irregular infiltrative shadow, its rapid growth and metastasis.

Intrathoracic Goiter: Seen mostly in adolescents. By x-ray showing broad base above and narrow below.

Whooping Cough: This may sometimes cause confusion but the blood count, x-ray and careful observation will provide the differential diagnosis.

Congenital Stenosis of Trachea and Larynx: By x-ray and examination by a laryngologist.

Acquired Stenosis: Diphtheria, etc., by physical and x-ray examination.

Many wonder why an enlarged thymus kills in some cases and not in others. This is due partly to the shape of the thoracic cage, and also to the soft tissue of the respiratory tract. Some children have more soft tissue relaxation than others.

TREATMENT

The treatment, of course, is x-ray. The majority of men, I believe, are now giving weekly treatments for three weeks, then waiting a month and repeating the series, after which a check-up is made with a plate. If the patient is not well after this treatment, I think we are then dealing with some condition, not yet diagnosed.

CONCLUSIONS

1. There is still much to learn about the physiology of the thymus.

2. The width of the gland means nothing. It is the thickness which is of value in making a diagnosis.

3. The dangers and frequency of enlargement of the thymus have been greatly exaggerated.

4. The only true way of x-ray diagnosis is by the lateral view.

5. The sudden anesthesia deaths are due to a temporary engorgement of the gland causing stenosis of the trachea. Engorgement is immediately relieved after death and autopsy shows a normal thymus.

6. Artificial respiration does no good as it forces the air out of the lungs but none in. Mouth to mouth insufflation is more useful, followed by carbon dioxide and oxygen inhalations until the temporary engorgement goes down and the child is able to breathe again.

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INFANTILE ACRODYNIA

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SINCE the etiology of acrodynia has not been established, every case should be a matter of record.

The acrodynia syndrome was recognized in Australia as early as 1883 by William Snowball, who described it to his students as "raw beef hands and feet." Charles Clubbe, of Sydney, at about this same time, referred to it as "pink disease." Swift, of Australia, elaborated upon severel cases he had observed while house physician at Great Armond Street Children's Hospital, London, in 1885. Selter, a German, reported eight cases in 1903.

In 1914, Swift restated the syndrome, basing his report on fourteen cases, and succeeded in arousing a new and widespread interest. By 1920, Wood and Cole were able to collect ninety-one cases from the literature, from which they made a comprehensive review of the signs, symptoms, prognosis, and treatment of the disease.

Subsequent reports have come from France, England, Holland, Germany, Australia, and America. Many cases are now on record.

Throughout the British Empire, the name "pink disease" has been generally accepted.

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In America, we find it referred to as "infantile acrodynia." Numerous other names have at times been applied to this same disease: Erythredema, polyneuritis, epidemic erythredema, Swift's disease, dermatopolyneuritis, Selter's disease, Feer's disease, and pedionalgia epidemica.

Writers differ greatly as to whether or not the French epidemic which occurred in 1928-30 and affected upwards of 50,000 adults with symptoms similar to those seen in infantile acrodynia, can be placed in this same category. According to Weston, records of this disease can be found in the archives of the sixteenth century. If the European epidemics which have been traced to arsenic poisoning in food are truly acrodynia, then we are inclined to suspect there must be some

difference between the adult and the infantile types.

INCIDENCE

While acrodynia has been seen in children between the ages of six weeks and fourteen years, the majority of cases have been found to occur within the range of eight months to four years. Sex seems to play no important part. Contrary to one theory that avitaminosis is the causative factor, it has been shown that acrodynia attacks irrespective of social status. In America, the greater number of cases are seen in the winter or spring, whereas in Australia it is more commonly encountered during late summer and autumn. This would tend to emphasize a positive relation to the catarrhal season.

ETIOLOGY

We must concede acrodynia to be a distinct clinical entity of undetermined etiology. Chief among the theories advanced are:

1. Infection, primarily of the upper respiratory tract. This is generally accepted in America.
2. Dietary deficiency.
3. Poisoning due to some unknown agent.
4. Functional disorder of the vegetative nervous system.
5. Some specific unknown organism.

Cogg disregards all other theories, and proceeds to classify the first as follows:

a. A specific infection of unknown etiology.

b. The manifestation of the toxic effects of a previous case of influenza or repeated infections of the upper respiratory tract.

Among the supporters of this theory are Gareau, Pehu and Jarricot, Guralnick, Blackfan, Geissinger, Petin and Jarricot, and Watts.

DeMello and Wilson describe two cases which they believe may have been due to avitaminosis. Both patients, however, gave a history of sore throat in conjunction with the appearance of the acrodynia.

Poisoning by some unknown agent as the causative factor is substantiated by the papers of Meyer and Weise and Calvin and Taylor. The presence of arsenic in the blood and urine in both patients was demonstrated. Nevertheless, in the case of Meyer and Weise, the acrodynia followed in the wake of a respiratory infection.

That a functional disorder of the vegetative nervous system accounts for the condition is accepted by various writers including Schachter and Nelson.

Pehy and Ardisson, Clement, Brook, and Levesque and Mery report cases illustrating their belief that the etiology of acrodynia is some specific unknown virus of a neurotropic nature.

SYMPTOMATOLOGY

In sharp contrast to its widely disputed etiology, we find a classic picture characterizing the signs and symptoms of infantile acrodynia. Cobb gives an excellent description:

"The onset may be abrupt or gradual, lasting for two weeks or more. At first there is increasing irritability and insomnia, sometimes with a low grade fever. Photophobia, conjunctivitis, lacrimation, profuse sweating and a generalized miliary rash often appear early, though occasionally ocular signs are lacking throughout the course of the disease. Asthenia and hypotonia become increasingly marked. The typical appearance of the hands and feet is usually established by the second or third week. This is a swollen, cold, beefy, slightly cyanotic erythema, which is most marked at the tips of the fingers and toes and shades out gradually. It is accompanied by painful local paresthesias.

"Sometimes unexplained fever appears a few weeks before the onset. This lasts for two or three days and is followed by an uneventful interval prior to the beginning of the symptoms.

"During the height of the illness, the patient may bury his face in the pillow or the mattress and lie in one position for long periods. Sometimes he lies with the head between the knees. All interest in play is lost. Hypotonia is marked. Weakness may be so great that he is unable to stand. The mind, however, is normally oriented.

"Loss of appetite is common. Occasionally there may be diarrhea, but more often con-

stipation or normal bowel function is seen. Gastric anlayses in two cases gave results which were within normal limits.

"Besides the typical appearance of the hands and feet, there may be a similar erythema of the tip of the nose, the malar prominences of the cheeks, or the tips of the ears. This erythema waxes and wanes, and branny or rather coarse desquamation appears with its intermittent fading. The changes in the intensity of the erythema are most marked when the disease begins to subside. The profuse, irritating sweat which bathes the skin also improves. Macules, papules, bullæ, and pustules are sometimes found alone or in combination, scattered over the general surface of the skin. Furuncles are not unusual. Trophic ulcers of the hands and feet complicate the disease now and then; some have even developed into gangrene. Sometimes the fingernails and toenails are shed. Frequently there is a liberal falling out of hair. Quite commonly the patient pulls it out in handfuls.

"Keratitis has been described, as have small ocular hemorrhages.

"There is constant and striking tachycardia, the pulse rate ranging usually from 120 to 160 in a resting febrile child. Another feature of acrodynia is the hypertension usually between 100 and 130 mm. of mercury."

CASE HISTORY

C. B., male, age five, colored, seen October 13, 1934.

Family History: Father has had chronic arthritis (possibly polyneuritis) and chorioretinitis for years. Mother has irrelevant minor trouble with negative Wassermann. Brother, age 15, had four plus Wassermann and clinical signs of secondary syphilis. (Test made in April, 1935.)

Past History: Patient had rickets at the age of one. Pertussis at age two. Excellent health for the three years prior to onset of present illness.

Chief Complaint: Pain in lower extremities.

Present Illness: On October 9, patient complained of feeling badly, with severe pains in his legs, frontal headache, and signs of "head cold." He became very irritable, cried almost continuously, and refused to eat. That night he was very restless.

This condition grew progressively more severe.

When I first saw the patient, on October 13, he was doubled up (the characteristic knee-chest position) as one with an acute appendix. He screamed out in agony when I came near, and fought the examination. His expression was that of extreme suffering and apprehension.

Physical examination revealed a colored male, aged five, acutely ill. Temperature, 101; pulse, rapid. Respiration within normal limits.

Head: Grossly negative. Eyes: Marked photophobia. Ears: Negative to inspection. Nose: Congestion present, with heavy mucopurulent discharge from both nose and throat. Neck: No stiffness.

Glands: No enlargement.

Thorax: No rachitic changes evident. Heart: Tachycardia present. No murmurs heard. Lungs: Negative.

Abdomen: Slight distention, with no marked tenderness or rigidity.

Extremities: Toes and fingers swollen, exquisitely tender.

Skin: It was impossible to determine whether the body as a whole had changed color. However, the palms of the hands and soles of the feet were definitely pink. The skin showed a generalized miliary rash with dry crusty tops. It looked and felt like emery paper.

Reflexes: Somewhat exaggerated.

Progress: A diagnosis of infantile acrodynia was made on the day following the examination. By this time, the swelling was extending up the hands and feet. Movement of toes and fingers caused excruciating pain. Urinalysis showed much pus.

The respiratory condition responded to treatment with argyrol solution within a week; while the swelling and soreness of the extremities had reached the ankles and wrists. There was no pitting of the swelling. Temperature had dropped to normal. The patient was very depressed mentally.

On October 20, eleven days following the onset, the tip of patient's nose began to scale. Six days later the swelling of the extremities had greatly diminished, and the nose, hands, and feet were peeling in large flakes. Fine brown scales were dropping off the body.

By October 29, the patient was able to stumble across the room by holding to furniture. The right hand was involved in a slight recurrence of the original symptoms. This subsided gradually until November 14 when he complained of pains

in his left thigh, and refused to move the leg for ten days.

The peeling of the body continued for another week, except when oil was applied to the skin. Photophobia existed throughout the entire course of the illness, to such an extent that for months after the other symptoms had disappeared he would shun sunlight.

For at least six months or until April or May of 1935, patient's gait was awkward.

He has been seen on various occasions since, and has had no complaints of any type or character.

Brewers' yeast and viosterol with salicylates for relief of pain were practically the only medication given.

CONCLUSIONS

1. A case of infantile acrodynia in a colored child is reported.

2. The history suggests an infection of the upper respiratory tract as having been the etiologic factor.

3. Slow but gradual improvement followed the clearing of the respiratory condition.

4. Until agreement has been reached regarding the etiology of this disease, each case observed should be reported.

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THE TREATMENT OF DIABETES WITH INSULIN

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VON MERING and Minkowski in 1889, first demonstrated that pancreatectomy causes severe and fatal diabetes. It was in 1891 that it was found that feeding of the thyroid gland would cure myxedema and it was hoped that similar treatment would relieve diabetics. However, it was soon found that feeding of raw pancreas actually increased the glycosuria. There were a number of attempts in the succeeding years following to develop an extract of the internal secretion of the pancreas, but the destructive action of trypsinogen upon the extract presented an apparently insuperable obstacle. Zuelzer in 1907 did obtain an active extract, and was successful in actually reviving one comatose patient who lived for five days thereafter. This product was employed in seven other patients with encouraging results upon the diabetes, but fever and chills prevented the general application of this method of treatment. (Incidentally, it may be mentioned that of the first seven injections of insulin given to a diabetic patient, six resulted in abscesses. However, the Toronto clinicians were undaunted and overcame these temporary difficulties by further refinements in manufacture.) The story of the discovery of insulin by Banting is well known. The idea was first conceived by him in November, 1920, and work was commenced at Toronto in May, 1921. It has been said that he had great difficulty in convincing Professor McLeod that there was merit in his idea, but he was finally granted laboratory space and a limited number of dogs as well as an assistant, Mr. Best, who was a trained physiologist but who had not yet completed his work for a degree in medicine. Best soon became engrossed in the work and Banting has always freely acknowledged his invaluable aid in the final development of the product. The date of the first injection of insulin in a human patient

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was January, 1922, and the modern era of treatment of diabetes was begun.

We may briefly study the treatment of diabetes with the original or regular, insulin.

In the first place, let me emphasize that careful dietary control is imperative. Qualitative restriction only of starches is actually dangerous when insulin is being used. Such patients have a variable basal value of sugar in the blood with a resultant increased liability to insulin reactions. The diet must be of the same value, day after day and meal by meal, in available carbohydrate and total calories if the results with insulin are to be assessed and if serious reactions are to be avoided. The effect of regular insulin is transitory, usually about six hours, and a severe diabetic not infrequently requires four doses of insulin in twenty-four hours to be kept under good control. Fortunately, with control, the disease tends to become more mild and later the frequency of injections can be reduced to three or even two a day. The repeated injections are somewhat of a burden and most patients have been anxious to be placed on the newer types of insulin in the hope of reducing the number of injections, but I venture to say that the carefully instructed and disciplined patient was, in many cases, under better control on regular insulin than he is today on protamine insulin.

THE USE OF PROTAMINE INSULIN

Hagedorn's first report on protamine insulin was made in June, 1935, and a few months later the product was made available to a relatively large number of clinicians in university clinics and in private practice. Protamine is prepared from fish sperm and when added to regular insulin produces a precipitate known as "insulinate" which is relatively slowly absorbed, thus giving a more uniform and prolonged action. The first preparations were unstable, the potency decreasing from day to day, and were usually inert at the end of ten days, so that it was necessary to prepare a new lot frequently. Chart I demonstrates the relatively short action of the original protamine insulin. The addition of a small amount of zinc to the preparation in 1936, not only caused a further prolongation in blood sugar reducing effect, but also seemed to increase its stability, so that today the effect continues for at least 24 hours and the product is potent for many months if kept cool.

FREQUENT GLYCOSURIA

In February, 1937, protamine zinc insulin was placed on the market and since that time has been very generally used by nearly all physicians with a great deal of satisfaction to most of them. It may be heretical to express dissatisfaction with protamine insulin but a careful analysis will demonstrate that the severe diabetic is not controlled by the use of protamine insulin alone. I do not deny that insulin retarde has great merit, but there are certain difficulties which arise in its use which demand that the patient be carefully observed. One of these difficulties is the frequent glycosuria which may persist from breakfast until after the last meal at night. I grant that some able physicians discount the harm that may result from this, but I believe that it may be fairly stated that the nearer we approach to a normal blood sugar curve over the twenty-four hour period the better it is for the patient.

A second and more serious criticism is that insulin shock has not been reduced, but on the contrary, has been actually increased both in frequency and in severity. These reactions have been most frequent in the early morning hours following the night's fasting period, and on several occasions two of my patients have been found unconscious while still in bed. More rarely the reaction has occurred during the day, and these have been remarkable in that there have been no prodromal symptoms such as occurred with regular insulin. One of my patients of higher than average intelligence had originally been treated with regular insulin and was familiar with the prodromata of reactions and knew how to correct them. A few weeks after starting on protamine insulin she had a sudden reaction while at work, became unconscious and was carried to her home before the nature

of the seizure was recognized. She was sick for twenty-four hours with weakness, nausea and vomiting. The vomiting is an especially troublesome feature requiring that intravenous glucose be used even in patients able to swallow. A reaction such as this one is especially dangerous in older patients with diseased arteries. Several deaths from cerebral hemorrhage and from coronary infarction reported in the literature have probably had insulin reactions as a contributory factor.

In an effort to overcome these drawbacks I have resorted to the use of bedtime feeding of some slowly absorbed carbohydrate to

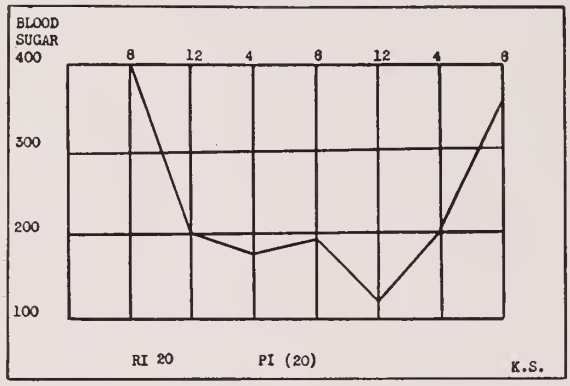


CHART I

obviate the long fasting period with its resultant dangerously low blood sugar. Another measure employed is the use of the combined protamine insulin and regular insulin. A moderate dose of protamine insulin may be supplemented with regular insulin at one or more meals to prevent the postprandial glycosuria. This has the obvious disadvantage of the use of the needle more frequently, but I have not yet found the royal road for the severe diabetic. Some patients have done well when the two types of insulin have been combined in one dose, even when mixed in the same syringe. I grant that this latter procedure causes some physical change in the insulin, the exact nature of which is not clear, but in my experience it has increased the speed of its action so that the daily glycosuria has been reduced and there have been fewer reactions at night. One patient who developed diabetes at eighteen months was originally treated with regular insulin, eighteen units in divided doses, with incomplete control. In February, 1936, when about three years old she was started on regular insulin in the morning and protamine insulin in the evening with good results. In May, 1936, an effort was made to control the glycosuria by a single morning dose of protamine insulin with fail-

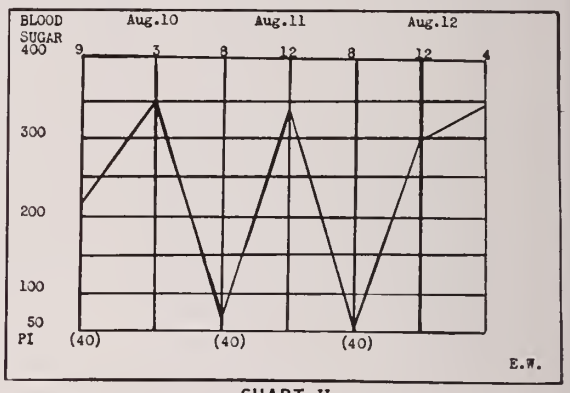


CHART II

ure. Again in June there was the same failure and in September a third attempt was made, but without success. During each of these periods she had glycosuria during the day with reactions each night. Changing the time of injection to noon and evening did not help, she continued to have reactions. In March, 1937, we started the combined insulin with satisfactory results and she has continued on

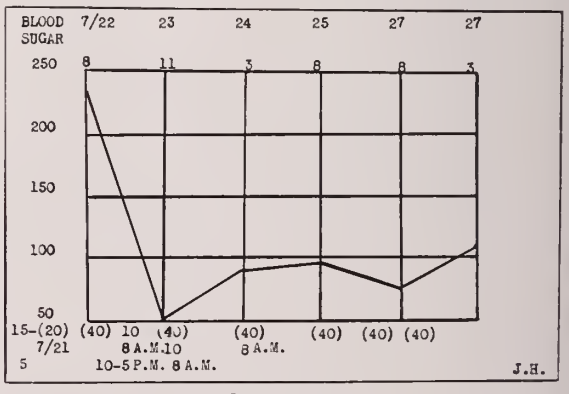


CHART III

this regime since that time. Her present dose is twelve units of regular insulin mixed with eight units of protamine insulin each morning. She has no reactions and the disease is under good control. She is now in her sixth year, is normal in height and weight, has been vaccinated against pertussis, diphtheria and smallpox and has had measles—all without

complications. The little girl and her mother both appreciate the advantage of only one injection in twenty-four hours.

I have four other juvenile diabetics who have been treated satisfactorily by this plan of mixed insulin, whereas the protamine insulin alone failed. This plan has also been used in older diabetics with the same good results.

Chart II shows the effect of protamine insulin alone in a severe diabetic. It shows the dangerously low fasting blood sugar with postprandial hyperglycemia. The treatment was changed to 36 units of protamine insulin and six units of regular insulin given each morning and under this plan the hyperglycemia and glycosuria have been avoided.

Chart III shows an apparently good result with protamine insulin alone in a severe juvenile diabetic. However, following his discharge from the hospital he began to have afternoon hyperglycemia and glycosuria. His dosage was gradually increased to 50 units of protamine insulin each morning without relieving the hyperglycemia. His treatment was then changed to an injection of 30 units of protamine insulin mixed with 20 units of regular insulin with success. No modification of this has been necessary for a period of nearly two years.

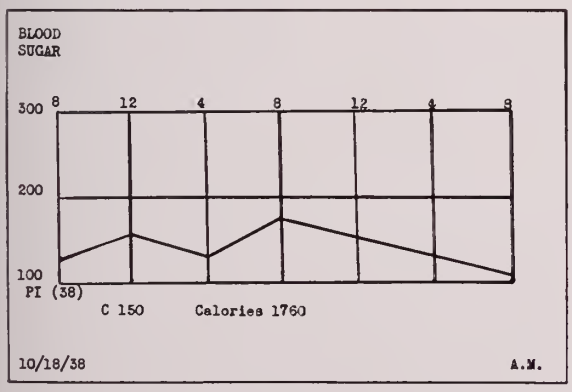


CHART IV

I feel that protamine insulin alone is applicable chiefly to the mild elderly diabetic who is overweight. Such cases, if the diet is properly adjusted, will go along day after day without postprandial hyperglycemia. But do not forget that these patients are also liable to an overdose of insulin, and that it is just these elderly patients in whom a reaction may result fatally. Furthermore this is the type of disease which can be controlled by diet alone. With reduction of weight to normal these patients have a high glucose tolerance.

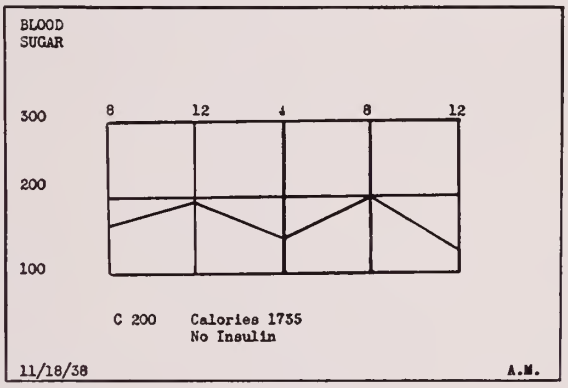


CHART V

SUMMARY AND CONCLUSIONS

Charts IV and V in the case of A. M., show such a case. This man had an initial fasting blood sugar of 500 mg. per 100 cc. and his disease was complicated by an infection of the bone and soft parts of the foot. An amputation of one toe was done but the foot has been saved and he is now doing satisfactorily with diet alone as is shown by slide five. With further weight reduction I believe he will show a completely normal curve.

(1) Insulin is life saving in the severe diabetic. Juvenile diabetes was always fatal in the preinsulin era. Today death in these cases should never be due to diabetes.

(2) The slowly acting insulins of which protamine zinc insulin is the best known, have a distinct field of usefulness, but only close observation of the patient will insure maximum benefit.

(3) Protamine insulin alone does not satisfactorily control the severe diabetic.

(4) Protamine insulin and regular insulin may be mixed in the same syringe with satisfactory results.

(5) The mild case, especially if overweight can be controlled with diet alone and insulin is needed only when there is a complicating factor.

Tuberculosis Abstracts

Furnished Through the Courtesy of the West Virginia Tuberculosis Association

To what extent tuberculosis may be regarded as an industrial hazard is engaging the attention of industrial leaders, legislators and physicians. Not only occupation but also several other factors are responsible for tuberculosis among industrial workers. Ornstein and Ulmar analyze these factors. Excerpts from their paper on the subject follow:

TUBERCULOSIS IN INDUSTRY

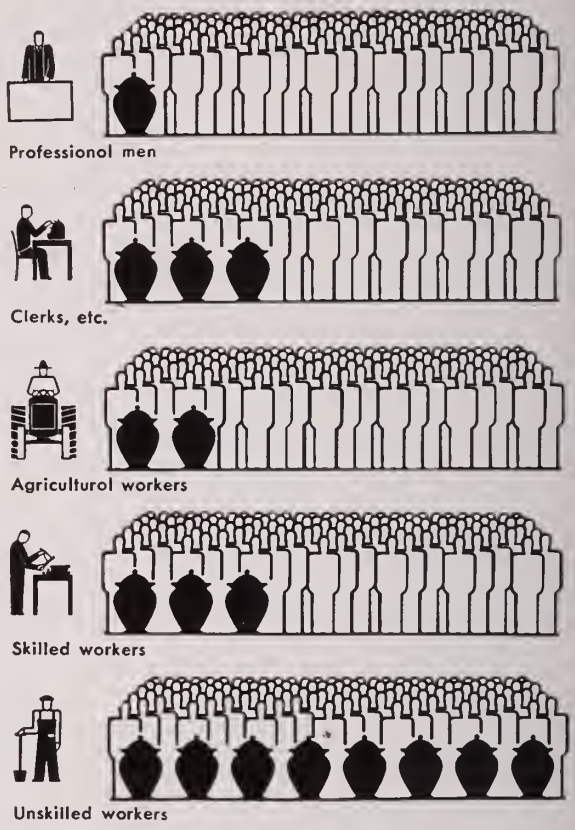
The death rate among the unskilled workers is more than twice that of the skilled workers. Is this due to the industry or to lesser earning capacity? It is more probably due to the latter.

Is tuberculosis an occupational disease? An occupational disease is one that arises out of the occupation per se. There must be a definite relationship between the etiology of the disease and the occupation. The frequency of the occurrence of the disease in the occupation must be greater than the incidence of the disease in a similar group not so employed. A high frequency of tuberculosis in a particular industrial group may be due to the fact that the labor is recruited from a section of the city where tuberculosis is more prevalent than in other sections.

In a few definite groups only may tuberculosis be considered as an occupational disease. These groups include:

Workers caring for the tuberculous sick—nurses, orderlies, attendants, etc. The frequency of the occurrence of tuberculosis infection and disease among medical students and nurses has been noted by numerous workers. There can be no question but that the opportunity for exogenous infection of the lungs by the tubercle bacillus presents itself in the care of the tuberculous sick. At Sea View Hospital, New York City, x-ray evidence of pulmonary tuberculosis was found in 10 of the 1,000 nurses during the period from 1930 to 1935, and 21 others developed lesions in the lungs while working in the hospital. Of the 10 cases which showed evidence of pathology on admission, seven continued to work with either clearing or no change in the lesion; one broke down with a cavity and two did not start work. It is most important to note that while the incidence rate was low in the Sea View group (one per cent) the occurrence rate was high which indicates a definite hazard from an insurance standpoint. By contrast, the tuberculosis occurrence rate among employees of a large department store was found to be a small fraction as compared with that of the nurses group.

Occupation Influences Tuberculosis



Each urn: 25 deaths from tuberculosis per 100,000 workers in the age of 25 to 44 years.

Similar studies made among medical students have tended to show an increased incidence of tuberculosis disease among them, presumably due to their occupation which throws them in contact with the open tuberculosis cases.

In a great many general hospitals, the frequency of implantation of tubercle bacilli in the previously non-infected probationers has been almost as great as in the tuberculosis wards. Many cases of open tuberculosis are admitted to the general hospital for surgical and other forms of treatment. The tuberculous disease is not suspected and the nurse takes no precautions against exogenous cross-infection while she attends the patient. The contact may be a continuous one without the tuberculous disease ever being discovered. The nurse later breaks down with the disease. The question of whether the tuberculosis acquired in a general hospital is an occupational disease will depend a great deal upon the

frequency of the admission of tuberculosis to the hospital.

Store clerks, saleswomen, waiters, conductors and others who have contact with a large number of people in whom there may be a high incidence of tuberculous disease: The presumption that the tuberculosis acquired in these occupations may be classed as occupational, is based on the many opportunities for contact with open cases of pulmonary tuberculosis. There must be a wide variation in the opportunities of contact infection in districts with small or high incidence of clinical tuberculosis. Think of the possibility of such contact in the five and ten cent stores in neighborhoods of low economic standards. There are no definite figures as yet in such industries but the general impression is that the occurrence is frequent. The workers are not recruited from the slum sections; in some of the large cities they come from a good middle class where the incidence is not high.

Workers exposed to silica dusts: Silicosis is definitely an occupational disease. Many investigators have associated silicosis with the occurrence of pulmonary tuberculosis but the authors dispute the commonly accepted belief that the deposit of silica in the lungs renders the lung susceptible to infection by tubercle bacilli. That most of the silicotics die of pulmonary tuberculosis is a debatable question.

The present concept of the high mortality of tuberculosis is founded, not on extensive autopsy series but rather on the computations of vital statistics. This is a source of grave error, for not only can mistakes in diagnosis be made by the clinician so that the basis of the statistics is wrong, but also misleading conclusions can be drawn from the existing figures.

The authors warn of the dangers of error in differentiating between silicosis and pulmonary tuberculosis, challenge the high frequency and death rate of tuberculosis as a complication of silicosis and assert that clinical tuberculosis should not be diagnosed in silicosis unless tubercle bacilli are demonstrable in repeated sputum examinations.

Trauma: Compensation laws have directed attention to the relationship of trauma to tuberculosis. Tuberculosis has a specific etiology and, therefore, trauma cannot produce the disease. Trauma can, however, reactivate a previously existing active tuberculosis. Most of the confusion comes from the varied opinion concerning the time interval which may elapse from the date of the injury to recognition of the tuberculous disease.

Gases and vapors may also activate a preexistent pulmonary tuberculosis by producing an inflammatory process in the vicinity of the preexisting tuberculosis disease by the irritant chemicals. (Several chemicals are listed.)

Trauma plays an important röle in tuberculosis of organs other than the lungs. In this group the time element creates difficulties because of inability to demonstrate the immeditae spread of tuberculosis.

Tuberculosis in Industry, George G. Ornstein, M.D., and David Ulmar, M.D. Quarterly Bulletin of Sea View Hospital, Vol. IV, No. 2, Jan. 1939.

USE OF PROPRIETARY SEDATIVES

A case of bleeding under the skin, characterized by purple spots (hemorrhagic purpura), due no doubt to the proprietary sedative, sedormid, is reported by Teresa McGovern, M. D., and Irving Wright, M. D., New York, in *The Journal of the American Medical Association* for April 29.

The authors state that "while it is probable that many persons have suffered no ill effects from sedormid, the forty-five cases of hemorrhagic purpura reported in the literature following its use should cause real concern. This emphasizes the need for further study of its properties, restriction of its sale except on a physician's prescription and caution on the part of the physician in recommending its use."

The condition occurred in a white woman aged 57 who complained of multiple hemorrhages. No injury had been sustained to account for the condition. Her legs, thighs, arms, body and mouth had hundreds of hemorrhages of various size. When she was hospitalized she was spitting blood. Questioning about self-prescribed medicine brought out the fact that the patient had taken one-half tablet of sedormid nightly for several months, with no ill effects. After a lapse of about a month she took a whole tablet the night before the onset of the present condition. Soon she became acutely ill, with chills, fever and excessive thirst. A sleepless night was followed by a raging headache the next morning. By evening she had spotted hemorrhages under the skin.

After a week's hospitalization and treatment, when the condition of the patient's blood had started to improve and her hemorrhages to disappear, the patient was discharged.

President's Page

The time has come when we begin to look forward to our State meeting, and this year it is more important than ever before that all should plan to attend. The meeting will be held at The Greenbrier, White Sulphur Springs, and I know of no more beautiful spot for both a meeting and a vacation. It is true that the expense is somewhat more than when meeting in the various cities, but when we consider what is offered, it is not too high. However, if anyone feels the cost is out of their reach, excellent accommodations may be had at a very modest rate in the village of White Sulphur, and members residing there will have full privileges of The Greenbrier.

The program committee has arranged a splendid Scientific Program and has made some changes in the time of the meetings, so that each member will have more leisure hours for visiting the exhibits and enjoying the many beautiful recreational activities offered at The Greenbrier.

The recent meeting of the County Presidents and Secretaries was well attended and I think well worthwhile. A complete report was made by the Low Cost Study Committee and followed by enthusiastic discussion by nearly all present. Many excellent suggestions were made, along with criticisms and objections to the several parts of the report. All of these points will be incorporated in the report to the House of Delegates at White Sulphur. I believe this meeting will go far toward making our State meeting less arduous more conclusive and pleasant.

We have many problems to meet at this time and every doctor should accept his share of the responsibility. Plan to come to our State meeting to help in this work, enjoy the Scientific Program, renew old friendships, and at the same time get a well deserved vacation from the "grind" at home.

Ray M. Bobbitt

President.

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REPLACEMENT OF PHYSICIANS

During the year 1938, the obituaries of 3,768 physicians were published in the *Journal of the American Medical Association.* During the same year, 6,252 physicians were added to the number practicing in the United States. While this represents an increase of 2,484 in the physician population of this country, it is reasonable to assume that a considerable portion of this increase was absorbed by disability and by retirement of aged practitioners. Considering these factors, it becomes apparent that the increase in our physician population is not out of step with the general population increase throughout the nation.

Interesting statistics are available relating to the licensure of new physicians and the causes of death of those who have passed on. Heart disease was again the leading cause of death among physicians, as it has been for many years. The average age at death was 65.6. Heart disease was reported as a cause of death in 1,491 cases, coronary thrombosis in 337, coronary occlusion in 167 and angina pectoris in 84. Other diseases of the heart caused 507 deaths.

Arteriosclerosis was the second most frequent cause of death, with 442 victims. Cerebral hemorrhage ranked third with 384 deaths; 28 additional deaths reported as due to paralysis. Fourth on the list was pneumonia, with 350 deaths, of which 111 were specified as due to bronchopneumonia. Cancer caused 334 deaths and nephritis 204.

Regarding the new physicians, a measurement of the efficiency of medical education is contained in the analysis of the total number examined—7,454—of which 6,582 passed and 872 failed. Of the 5,606 graduates of approved schools in the United States, only 2.9 per cent failed. Out of 163 graduates of approved Canadian schools, 9.2 per cent failed; of 1,166 graduates of schools outside the United States and Canada, principally in Europe, 38.6 per cent failed. There were 12 graduates from schools now extinct with 69.2 failures, and 504 from unapproved and osteopathic schools of whom 47 per cent failed.

From these figures it is obvious that candidates admitted to state board examinations on the basis of foreign credentials are not as well prepared for the licensing test as those who have been educated in our own schools. It may be argued that the poor record of graduates of foreign schools is due to the fact that they have not yet mastered the English language. This explanation, however, can account only partially for the discrepancy, since many of those educated abroad were born and reared in this country.

Failures of candidates from countries which furnished 25 or more candidates during 1938 are as follows: Austria, 28.7 per cent; France, 37.2 per cent; Germany, 41 per cent; Italy, 53.9 per cent; Scotland, 17.1 per cent; Switzerland, 32.6 per cent. The total number of candidates examined from these countries was 1,097 and the average percentage of failures was 38.3.

In West Virginia during 1938 there were 124 physicians licensed by the Public Health Council, of which 115 were graduates of approved American schools. Of the remaining nine, three were Canadian graduates, five were graduates of German universities and one graduated in Switzerland. There have been only 28 graduates of foreign schools licensed in West Virginia since 1929, and Canada furnished 15 of these. Statistics are not available on the percentage of failures.

THE TRUTH WILL OUT

At long last we are beginning to feel that the WEST VIRGINIA MEDICAL JOURNAL has some regular readers. We arrived at this conclusion as a result of a number of sneering remarks relative to our multiplication in the May issue. On page 243 of the May JOURNAL we stated "The average directory contains the names of 5,000 physicians. The fee charged for each listing is five dollars, which gives an income of $75,000."

Of course this multiplication is wrong, as we discovered when we finally set the figures down on paper and really figured this thing out. However, we were just off $50,000 and that is not much to sneer at in this day and age. Anyway, the figure should have been 15,000 physicians at five dollars each, or 5,000 physicians at fifteen dollars each; we forget which.

Back in 1927 the JOURNAL published a paragraph praising a chiropractic contraption and we only got one complaint. Last month appeared our little error of fifty thousand dollars and we got ribbed from all sides. That is a sign of increased reader interest. Probably the day may even come when someone besides Dr. Vest will jump us for splitting infinitives.

MRS. HOLCOMBE NATIONAL PRESIDENT

Mrs. V. E. Holcombe, Charleston, who will become president of the State Woman's Auxiliary at the White Sulphur Springs meeting in July, was elected president of the National Woman's Auxiliary to the American Medical Association at the annual meeting in St. Louis on May 17, 1939. The elevation of Mrs. Holcombe to the highest office within the gift of the National Auxiliary is not only a recognition of her own talent and ability, but a great honor to the State of West Virginia. She will be inducted into office as National President at the A. M. A. meeting in New York in 1940.

Mrs. Holcombe has been active in Auxiliary work for the past ten years and has served her county and state auxiliaries in many capacities. At the White Sulphur Springs meeting last year she was elected to the state presidency, to take office in July, 1939. At the time of her state election, she was serving as both State and National Program Director of Auxiliary activities and was a member of the National Board.

The JOURNAL extends its sincere congratulations to Mrs. Holcombe upon her election as president of the Woman's Auxiliary to the American Medical Association, and expresses its most cordial wishes for a successful administration.

MRS. V. E. HOLCOMBE
National President

PUBLIC ASSISTANCE EXPENDITURES

Association members will no doubt be interested in the latest compilation of expenditures of the State Department of Public Assistance for the 10 month period ending April 30, 1939; particularly those expenditures which deal with medical and hospital service to the indigent. There has been a general feeling in the medical profession that

medical relief expenditures have been materially curtailed during the past five or six months, but this is not borne out by the figures.

During the 10 months preceding April 30 the total relief expenditures of the 55 counties amounted to $2,862,334.55. Out of this, the sum of $581,685.48 was spent on medical relief; $327,702.03 for hospitalization and $253,983.45 for medical service. This represents a little better than 20 per cent of the total amount involved. In addition to the amount spent for ordinary medical relief, approximately $132,000 was distributed to physicians and hospitals through the bureau of adult physical rehabilitation.

Comparing the figures for this 10 month period with expenditures for the 12 month period ending June 30, 1938, we find that only $487,354 was spent for medical relief during these 12 months. In other words the expenditures for general medical relief during the past 10 months were approximately $100,000 more than for the preceding 12 months. In the 12 months period, approximately $132,000 was expended for adult physical rehabilitation. The percentage spent on medical relief during the 12 months period was about 18 per cent.

These figures are interesting when considered in the light of per capita receipts by individual doctors and individual hospitals. Assuming that 60 hospitals and 1,000 doctors participated in the program over the entire period of 22 months, the average for each hospital was a little over $10,000 and for each doctor a little better than $400.

Starting with July 1, 1939, there will be a curtailment of five hundred thousand dollars in the annual DPA budget. A further reduction of three hundred thousand will be made for the fiscal year starting July 1, 1940. With this reduced budget, there has been a general feeling that it would be absorbed largely through curtailment of medical and hospital services. Association officials have been assured by Mr. A. W. Garnet, state director, and Mr. John Morgan, chairman of the State DPA Board, that no reduction in medical relief is anticipated other than an equitable prorata reduction along with all other DPA activities. They both felt that the percentage expended for medical relief would remain approximately the same. In addition, they gave assurance that the program of adult physical rehabilitation, which was temporarily discontinued last January, would start again on July 1, 1939, with an appropriation of $125,000 for the year.

If funds are made available for medical relief, the problem of both the medical profession and the Department of Public Assistance is to see to it that such funds are equitably distributed to doctors and hospitals who render services to free choice relief clients. The solution to this problem is to be found in proper understanding and cooperation between county administrators and county medical societies.

Obituaries

DOCTOR J. K. ROWLAND

Dr. Joseph Kins Rowland of Flat Top, West Virginia, died at a Beckley hospital on May 19 following a brief illness from acute encephalitis. He was born at Princeton and educated at West Virginia University, later receiving his medical degree from the Medical College of Virginia in 1926. He practiced in Princeton for several years and assisted Dr. W. H. Wallingford there.

Dr. Rowland is survived by his widow, his mother and four sons.

DOCTOR C. P. BRADLEY

Dr. C. P. Bradley, 83 years of age and well known family doctor throughout Monroe county, died at his home at Lindside on May 21 from complications following an automobile accident one week earlier. He was one of the oldest active practitioners in West Virginia and typified the older school of "horse and buggy" doctor.

ONLY SIX PER CENT

Of 8,654 veterans of the World War hospitalized for tuberculosis in six months, 71 per cent were far advanced, 23 per cent moderately advanced and only six per cent were minimal. Matson, R. C., U. S. Vet. Ad. Phys. Conf. 1938.

General News

THE WAGNER HEALTH BILL

After thorough consideration of Senator Wagner's proposed "National Health Act of 1939", the House of Delegates of the American Medical Association at St. Louis on May 17 voiced vigorous opposition to this measure. Without a dissenting vote, the House of Delegates adopted the report of its reference committee on the Wagner Health Bill which cited 22 reasons why the measure was objectionable.

The Wagner Health Bill (S-1620) is designated "A Bill to provide for the general welfare by enabling the several states to make more adequate provision for public health, prevention and control of disease, maternal and child health services, construction and maintenance of needed hospitals and health centers, care of the sick, disability insurance, and training of personnel: to amend the Social Security Act: and for other purposes."

The House of Delegates at its special session in Chicago on September 16, 1938, considered the National Health Program and adopted resolutions based on five recommendations contained in the program. It is important that this fact be borne in mind, for the Wagner bill, which was drafted long after these resolutions were adopted and at a time when the resolutions were presumably known to the proponents of this measure, does not recognize either the spirit or the text of these resolutions. Any criticism of this bill by the American Medical Association is not to be construed, therefore, as a repudiation of any of the principles adopted by the 1938 special session.

The action of the House of Delegates is adequately covered in the following 22 objections enumerated in the St. Louis report:

1. The Wagner Health Bill does not recognize either the spirit or the text of the resolutions adopted by the House of Delegates of the American Medical Association in September, 1938.

2. The House of Delegates cannot approve the methods by which the objectives of the National Health Program are to be obtained.

3. The Wagner Health Bill does not safeguard in any way the continued existence of the private practitioners who have always brought to the people the benefits of scientific research and treatment.

4. The Wagner Health Bill does not provide for the use of the thousands of vacant beds now available in hundreds of church and community general hospitals.

5. This Bill proposes to make federal aid for medical care the rule rather than the exception.

6. The Wagner Health Bill does not recognize the need for suitable food, sanitary housing and the improvement of other environmental conditions necessary to the continuous prevention of disease.

7. The Wagner Health Bill insidiously promotes the development of a complete system of tax supported governmental medical care.

8. While the Wagner Health Bill provides compensation for loss of wages during illness, it also proposes to provide complete medical service in addition to such compensation.

9. The Wagner Health Bill provides for supreme federal control: federal agents are given authority to disapprove plans proposed by the individual states.

10. The Wagner Health Bill prescribes no method for determining the nature and extent of the needs for preventive and other medical services for which it proposes allotments of funds.

11. The Wagner Health Bill is inconsistent with the fundamental principles of medical care established by scientific medical experience and is therefore contrary to the best interests of the American people.

12. The fortunate health conditions which prevail in the United States cannot be disassociated from the prevailing standards and methods of medical practice.

13. No other profession and no other group have done more for the improvement of public health, the prevention of disease and the care of the sick than have the medical profession and the American Medical Association.

14. The American Medical Association would fail in its public trust if it neglected to express itself unmistakably and emphatically regarding any threat to the national health and well being. It must, therefore, speaking with professional competence, oppose the Wagner Health Bill.

15. The House of Delegates would urge the development of a mechanism for meeting the needs for expansion of preventive medical services, extension of medical care for the indigent and the medically indigent, with local determination of needs and local control of administration, within the philosophy of the American form of government and without damage to the quality of medical service.

16. The fundamental question is how and when a state should be given financial aid by the Federal government out the resources of the states as a whole, pooled in the Federal treasury.

17. The bizarre thinking which evolved the system of Federal subsidies—sometimes called "grants-in-aid"—is used to induce states to carry on activities suggested frequently in the first instance by officers and employees of the Federal government.

18. The use of Federal subsidies to accomplish such Federally determined activities has invariably involved Federal control.

19. Any state in actual need for the prevention of disease, the promotion of health and the care of the sick should be able to obtain such aid in a medical emergency without stimulating every other state to seek and to accept similar aid, and thus to have imposed on it the burden of Federal control.

20. The mechanism by which this end is to be accomplished, whether through a Federal agency to which any state in need of Federal financial assistance can apply, or through a new agency created for this purpose or through responsible officers of existing Federal agencies, must be developed by the executive and the congress, who are charged with these duties.

21. Such a method would afford to every state an agency to which it might apply for Federal assistance without involving every other state in the Union or the entire government in the transaction.

22. Such a method would not disturb permanently the American concept of democratic government.

LOW COST COMMITTEE'S REPORT

After seven months of intensive work, the Association's Low Cost Study Committee recently released the final draft of its report to all county medical societies for study and discussion prior the presentation of the report at the White Sulphur Springs meeting. The final draft of the report was completed shortly after the Conference of Presidents and Secretaries in Charleston on May 3, and embodied the suggestions and recommendations of the conference group.

The Low Cost Study Committee released sufficient copies of its report to the county secretaries to distribute to every Association member. For the benefit of any members who may not have received a copy of this report, it is published below in full. The complete report follows:

Bt It Resolved, That the West Virginia State Medical Association approve the principle of prepayment sickness insurance for the low income group and authorize the optional establishment of county medical society plans providing they are sanctioned and controlled by the county society and patients are given free choice of physician and hospital.

Be It Further Resolved, That a standing committee on prepayment sickness insurance be hereby created, to be known as the State Medical Service Committee, which shall have advisory jurisdiction over any and all county or district medical society plans for furnishing medical and surgical service in the home, office or hospital, on a prepayment insurance basis, under the following terms and principles adopted by this House of Delegates.

County plans may not extend beyond the confines of the area covered by the county society, except with the consent of any adjoining county society into whose territory the extension is contemplated, and with the further consent of the State Medical Service Committee.

Each county plan must be operated by a separate non-profit corporation established by the county society and whose board of directors shall at all times be under the control of the county society.

County plans may include complete medical and surgical care in the home, office and hospital and may include hospitalization, or it may include only those phases of the above coverage as best meet the needs of the county society.

Where existing hospital insurance plans are already in operation, county societies are at liberty to work out satisfactory arrangements with said hospital insurance plans for the inclusion of medical and surgical service, and for the sale of and collection for medical and surgical insurance contracts.

All participating physicians in any county plan must be members in good standing of the county society and must sign a written agreement with the service corporation to abide by its rules and methods of payment.

In order to prevent abuses, it is recommended that county plans which include home calls, establish a $5.00 deductible clause for home service, and that the plans collect the amount due the physician from the subscriber under such deductible clauses.

Questions relating to rates, salary limitation, service limitations, physicians fees, exceptions and other problems that differ in different localities may be worked out by each society to meet its individual

needs, with the advice of the State Medical Service Committee.

Disputes involving any county plan or county society, that cannot be amicably adjusted locally, may be referred by the plan's board of directors or by the county society itself to the State Medical Service Committee for arbitration and the decision of the Medical Service Committee shall be final.

It shall be the duty of the State Medical Service Committee to promote such uniformity in the county plans as can be reasonably attained.

The State Medical Service Committee is authorized to prepare and issue an Association seal of approval to those county society plans which, in the opinion of the committee, carry out the principles and policies outlined in this resolution, and the committee shall have the power to withdraw the seal of approval from any plan at any time for good and sufficient reason. County society plans which are awarded the seal of approval may use the same on their stationery, business cards, literature and ethical advertising. Plans which do not secure the approval of the committee will not be permitted to utilize the services of the committee as an arbitration board or for any other purpose.

The expenses of the State Medical Service Committee shall be borne by the Association, with the understanding that county plans may later be permitted to defray this expense if it becomes feasible to do so.

The State Medical Service Committee created in the first paragraph of this resolution shall consist of six members, one from each councillor district, to be selected by the president and approved by the House of Delegates. The terms shall be six years, but for the first year, one member shall be appointed for one year, one for two years, one for three years, one for four years, one for five years, and one for six years; and thereafter one member shall be appointed each year. The committee member whose term next expires shall serve as chairman, and the committee shall meet at his call. All available data, including the studies of the Low Cost Committee, will be placed at the disposal of this committee to assist county societies in the development of their plans.

THE CONVENTION PROGRAM

The scientific program for the White Sulphur Springs meeting on July 10, 11 and 12, 1939, has been virtually completed. In addition to arranging a splendid lineup of outstanding national talent to present the various subjects before the convention assembly, the committee has worked out several new innovations which are expected to meet with the wholehearted approval of Association members.

The chief departure from past convention routine will be the arrangement for all of the general sessions. All general meetings will be held during the morning hours, from 9:30 until 12:30 o'clock, leaving the afternoons open for sectional meetings, special society meetings, golf and entertainment. With this arrangement, every member in attendance will have either one or two afternoons free, during which he can either attend one of the sectional or special society meetings or indulge in extra-curricular diversions.

The second departure from ordinary convention routine will be the afternoon meeting of the House of Delegates on Monday, July 10. This meeting is scheduled from 4:30 to 6:30 o'clock and if the House of Delegates can complete its first day's work during this period, no night session will be held. The second meeting of the House of Delegates, for the election of officers and other business, will be held immediately following the President's Address on Tuesday evening, July 11.

The annual convention banquet and dance will be held on Wednesday evening, July 12, the closing night of the convention.

Special groups that have asked for luncheons during the White Sulphur convention include the Jefferson College alumni, the Reserve Medical Officers of the Army and Navy, the Syphilis Committee, the Phi Beta Pi fraternity, the Alpha Kappa Kappa fraternity, the alumni of the Medical College of Virginia and the group of anesthetists. The time and place for the special luncheons will be announced in the July JOURNAL, which will be the Convention Number. Other special groups that are interested in getting together at White Sulphur are requested to get in touch with the Association headquarters at Charleston so that suitable arrangements may be made.

The schedule for the sectional meetings and the meetings of special societies follows:

Monday afternoon, July 10—Section on Pediatrics; Eye, Ear, Nose and Throat Section, and Society of Industrial Physicians and Surgeons.

Tuesday afternoon, July 11—Section on Internal Medicine and the West Virginia Obstetrical and Gynecological Society.

Wednesday afternoon, July 12—Section on Surgery and the West Virginia Heart Association.

The general convention assemblies on the mornings of July 10, 11 and 12 have been arranged with the following essayists and subjects:

Monday morning, July 10—"Headache," by Dr. William Thornwall Davis, Washington, D. C.; "Sinus Disease in Children," by Dr. E. C. Mitchell, Memphis, and "Bursitis and Other Painful Conditions of the Shoulder," by Dr. George E. Bennett, Baltimore.

Tuesday morning, July 11—"The Pathologic Physiology of Edema with Special Reference to Its Treatment," by Dr. William B. Porter of Richmond, Va.; a presentation on obstetrics by Dr. Charles Joseph Barone, Pittsburgh, Pa.; the Oration on Surgery by Dr. R. J. Wilkinson, Huntington, and "The Significance of Oxygen to the Surgical Patient," by Dr. Donald E. Brace, New York City.

Wednesday morning, July 12—"Concentrated Oxygen and Its Therapeutic Application in Surgery," by Dr. Charles W. Mayo, Rochester, Minn.; the Oration on Medicine by Dr. R. O. Rogers, Bluefield; "Pneumonia Therapy," by Dr. Jesse G. M. Bullowa, New York City, and "The Causes and Prevention of Preoperative Death in Prostatic Hypertrophy," by Dr. W. J. Engel, Cleveland.

The essayists and subjects for the various Sectional Meetings follow:

Section on Pediatrics—Panel Discussion on Diarrhea, by Dr. E. C. Mitchell, Memphis, Tenn.; Dr. George M. Lyon, Huntington, and Dr. A. M. Price, Charleston.

Eye, Ear, Nose and Throat Section—"Anatomical Variations of Interest in Ear, Nose and Throat Practice," by Dr. John H. Trotter, Morgantown; "Motor Anomalies of the Eyes," by Dr. William T. Davis, Washington; "The Value of the Determination of Muscle Imbalance in Refraction," by Dr. C. T. St. Clair, Jr., Bluefield, and "The Middle Ear From the Point of View of Infection," by Dr. A. Seletz, Charleston.

Section on Internal Medicine—"The Problem of Fever," chairman's address by Dr. F. R. Whittlesey, Morgantown; "The Nutritional Deficiency States Concerned With Clinical Cardiology," by Dr. William B. Porter, Richmond, Va., and "Failure of the Peripheral Circulation," by Dr. D. C. Ashton, Beckley.

Section on Surgery—"The One-Stage Combined Abdominoperineal Resection for Carcinoma of the Rectum, Rectosigmoid and Sigmoid," by Dr. Charles W. Mayo, Rochester, Minn.; "Traumatic Rupture of the Spleen," by Dr. Thomas L. Harris, Parkersburg, and "The Use of Continuous Section in Surgical Treatment," by Dr. Chauncey B. Wright, Huntington.

West Virginia Heart Association—"President's Address," by Dr. R. J. Condry, Elkins; "The Misuse of Nomenclature in Heart Disease," by Dr. James L. Wade, Parkersburg, and "The Medical Implications of Stab Wounds of the Heart and Great Vessels," by Dr. William B. Porter, Richmond, Va.

The program for the West Virginia Society of Industrial Physicians and Surgeons will consist of a roundtable discussion by Dr. George E. Bennett, Baltimore, Maryland, on "Mechanical Causes for Non-Union of the Humerus, Tibia and Patella."

The program for the West Virginia Obstetrical and Gynecological Society will consist of a roundtable discussion led by Dr. Charles Joseph Barone, Pittsburgh, Pa., and the President's Address, "The Weight Curve in Pregnancy," by Dr. W. W. Point, Charleston.

The July issue of the JOURNAL will be the Convention Number, which will carry the completed program in chronological order, together with abstracts of the various scientific papers and the names of Association members who have been selected to lead the various discussions.

DR. VEST HONORED

Dr. Walter E. Vest, Huntington, will be presented with the honorary degree of Doctor of Science by the Medical College of Virginia at its one hundred and first commencement exercises at Richmond on June 6. This honorary degree is conferred annually upon an alumnus of the Medical College of Virginia for distinguished service rendered to the medical profession. During the past year Dr. Vest was honored with the presidency of the Southern Medical Association and also contributed distinguished service to the profession as a member of the American Medical Association's Governmental Conference Committee. He also served on the committee whose report on the Wagner Health Bill determined the policy of the American Medical Association at its annual meeting in St. Louis on May 17, 1939.

STATE SOCIETY DUES

An interesting tabulation of the state dues of 46 states and the District of Columbia has recently

been received from the Medical Society of New Jersey. The New Jersey Society conducted its survey in order to secure a basis of comparison of its own dues with the annual assessment of other states. Only the states of California and Maryland are missing from this survey.

The average annual dues of all states included in the report are $9.17 per year. The average dues for those states which employ full-time secretaries, either lay or medical, are $12.43. The highest state dues are paid by Oregon, $20 per year; and the lowest by Alabama, $3.00 per year. However, in Alabama there are 100 counsellors who pay $10 each. Increases in dues are contemplated in Indiana and Ohio. Assessments have been levied during the past year in the District of Columbia and Wisconsin.

County dues vary from fifty cents in one county in Arkansas to $50 in one county in Kentucky. County dues from $25 to $40 are not rare. The average county society dues throughout the country is roughly estimated at $8.00 per year.

The complete tabulation on state dues follows:

State Society	State Dues
Alabama	$ 3.00
Arizona	12.50
Arkansas	5.00
Colorado	15.00
Connecticut	8.00
Delaware	5.00
District of Columbia	20.00
Florida	10.00
Georgia	7.00
Idaho	10.00
Illinois	8.00
Indiana	7.00
Iowa	10.00
Kansas	10.00
Kentucky	5.00
Louisiana	6.00
Maine	8.00
Massachusetts	10.00
Michigan	12.00
Minnesota	15.00
Mississippi	4.00
Missouri	8.00
Montana	5.00
Nebraska	10.00
Nevada	10.00
New Hampshire	6.00
New Jersey	14.00
New Mexico	10.00
New York	10.00
North Carolina	8.00
North Dakota	5.00
Ohio	5.00
Oklahoma	12.00
Oregon	20.00
Pennsylvania	10.00
Rhode Island	10.00
South Carolina	6.00
South Dakota	10.00
Tennessee	6.00
Texas	9.00
Utah	10.00
Vermont	7.00
Virginia	5.00
Washington	12.00
West Virginia	10.00
Wisconsin	15.00
Wyoming	7.50

CONSTITUTIONAL CHANGE

Complying with Section 1, Article XIV, of the Constitution of the West Virginia State Medical Association relating to amendments, we publish below, for the second time, a proposed constitutional amendment introduced by Dr. A. S. Brady, Jr., at White Sulphur Springs on July 11, 1938, which will come before the House of Delegates for consideration on July 10, 1939:

"*Be It Resolved*, That Section 1 of Article V of the Constitution of the West Virginia State Medical Association, which now reads: 'Section 1. The House of Delegates shall be the legislative and business body of the Association and shall consist of (1) delegates elected by the component societies; (2) the councillors; (3) all ex-presidents; and (4) ex-officio the president and treasurer of this Association,' be hereby amended to read as follows: 'Section 1, Article V. The House of Delegates shall be the legislative and business body of the Association and shall consist of (1) delegates elected by the component medical societies; (2) all ex-presidents; and (3) ex-officio the president.' "

DR. BIERN IMPROVING

Dr. Oscar B. Biern, Huntington, scheduled to serve as toastmaster at the White Sulphur Springs banquet next month, is improving following an operation for gallstones. Dr. Biern was operated upon by Dr. Mont Reid at the Holmes Hospital, Cincinnati, on May 18. At press time he was reported well on the road to recovery and expects to be home shortly.

County Society News

CABELL COUNTY

The regular monthly meeting of the Cabell County Medical Society was held at the Governor Cabell Hotel, Huntington, on the evening of May 11 with Dr. I. I. Hirschman, president, presiding. Following the presentation of a moving picture film on "Human Sterility", the remainder of the evening was devoted to a discussion of the Low Cost Study Committee's report on medical insurance for the low income group.

JAY L. HUTCHINSON, *Secretary.*

CENTRAL WEST VIRGINIA

The Central West Virginia Medical Society met at Richwood, May 3, 1939, at the Methodist Church with President Eugene Brown presiding. The scientific part of the program was turned over to Dr. J. E. Echols, who presented Dr. E. V. Jordan, Charleston. Dr. Jordan read a paper entitled, "Treatment of Renal Infections", after which Dr. B. S. Drake, and Dr. J. F. McCuskey, of Clarksburg, discussed the paper.

Dr. W. H. Gum, of Buckhannon, was elected to membership of the Central West Virginia Medical Society.

President Eugene Brown, who attended the meeting of president and secretaries at Charleston, May 3, gave a report to the society regarding the discussions concerning low cost medical and surgical insurance. At this meeting, President Brown drafted the following resolution which was adopted by all the presidents and secretaries:

"WHEREAS, there seems to be a definite need for some organized plan sponsored by the State Medical Society to insure adequate medical and hospital care for the low cost groups, and whereas there seems to be a varied need in each and every section of the state and in the medical societies;

"*Therefore, be it Resolved,* That these groups of representatives of the several medical societies disapprove of any state-wide plan and go on record as favoring some several plans enacted by the county societies and supervised by the State Medical Association."

Mark Hall of Weston explained the low cost medical and surgical insurance program which is now in operation in Lewis county.

A motion was passed that a committee consisting of the president, secretary, delegates, alternates, and Dr. E. H. Hunter meet and consider the state committee's report which will be sent regarding their recommendations of low cost medical and hospital care. This committee meeting is to be at the call of the president, and minutes kept for reporting to the society.

It was moved that since our next regular meeting is to be held in July, which is also the time of the State Convention, that we have our regular meeting just before the State Convention.

The committee for arrangements for the next meeting to be held at Webster Springs is made up of Doctors J. M. Cofer, S. P. Allen, and E. H. Hunter.

A. B. BOWYER, *Secretary.*

FAYETTE COUNTY

The Fayette County Medical Society held its regular meeting at the Hotel Hill, Oak Hill, on the evening of April 25, 1939. The guest speakers of the evening were Dr. R. O. Rogers and Dr. J. R. Shanklin of Bluefield.

Dr. Rogers presented an interesting paper on "An Analysis of Blood Transfusions at Bluefield Sanitarium Over a Two-Year Period." Dr. Shanklin discussed "Recent Advances in the Chemotherapy of Pneumonia", with x-rays and photographic studies of patients treated with sulfanilamide and sulfapyridine.

Dr. Philip Becker, Kimberley, was admitted to membership in the society.

G. A. DANIEL, *Secretary.*

KANAWHA COUNTY

The regular monthly meeting of the Kanawha Medical Society was held at the Daniel Boone Hotel, Charleston, on the evening of May 9 with Dr. Thomas G. Reed, president, presiding. The guest speaker of the evening was Dr. Phillip W. Brown of the Mayo Clinic, Rochester, Minnesota, who gave a most practical lecture on "The Diagnosis and Management of the Irritable Colon Syndrome." Liberal discussion followed.

The society also had as its guest, Dr. Ray M. Bobbitt, Huntington, state association president. Dr. Bobbitt discussed the work of the Association's Low Cost Study Committee in attempting to formulate a plan of prepayment medical insurance for the low income group. A special meeting of the society was called for May 23 to discuss this important development.

Prior to the meeting of the society, Dr. Brown and Dr. Bobbitt were dinner guests of a group of members at the Edgewood Country Club.

A. S. BRADY, JR., *Secretary*.

LOGAN COUNTY

The regular monthly meeting of the Logan County Medical Society was held in the Appalachian Building, Logan, on the evening of May 10 with an excellent attendance. The guest essayists of the evening were Robert King Buford, M. D., and P. A. Tuckwiller, M. D., Charleston. Dr. Buford gave a paper on "The Surgical Aspects of Duodenal Ulcer" and Dr. Tuckwiller spoke on "Diagnosis and Medical Management of Duodenal Ulcer." An interesting discussion followed.

After the scientific program, the society devoted the remainder of the evening to business and economic problems.

J. W. CARNEY, *Secretary*.

MERCER COUNTY

The Mercer County Medical Society held its regular monthly meeting in the Municipal Building, Bluefield, on the evening of May 18, 1939. The attendance was very good.

Three representatives of the Farm Security Administration appeared before the society and expressed a desire for a health plan participation agreement to be worked out in cooperation with the society. On motion of Dr. Hoge, a special committee was appointed to confer further with F. S. A. officials on this matter and to report back to the society. Members of the committee appointed were Dr. J. R. Markell, Dr. R. O. Rogers, Dr. Frank J. Holroyd, Dr. Uriah Vermillion and Dr. B. S. Clements.

Dr. King read the report of the Low Cost Study Committee and it was further explained by Dr. Rogers. Following a general discussion, it was agreed to send a copy of the report to each member of the society for further study before the next meeting.

O. G. KING, *Secretary*.

MONONGALIA COUNTY

W. M. Sheppe, M. D., of Wheeling, chairman of the Association's Syphilis Committee, was the guest speaker at the May 2 meeting of the Monongalia County Medical Society, which followed a six o'clock dinner at the Hotel Morgan, Morgantown. Dr. Sheppe spoke on "Classifications and Methods of Treatment of Syphilis of the Central Nervous Systems." This was a most interesting presentation and brought out a liberal discussion.

CARL F. JOHNSON, *Secretary*.

OHIO COUNTY

Dr. E. L. Eliason, Professor of Surgery at the University of Pennsylvania, Philadelphia, was the guest speaker at the May 5 meeting of the Ohio County Medical Society, which was held at the Ohio Valley General Hospital, Wheeling. Dr. Eliason's paper was on "Surgical Jaundice." The general discussion was led by Dr. E. M. Phillips, Dr. R. J. Reed, Jr., and Dr. H. C. Harpfer.

The May 19 meeting of the society was devoted entirely to business matters. Plans were announced for the annual society golf tournament and banquet at the Wheeling Country Club on the afternoon and evening of June 2.

R. W. LUKENS, *Secretary*.

PARKERSBURG ACADEMY

The Academy of Medicine of Parkersburg held a meeting on May 3, 1939 at the Camden-Clark Hospital. The meeting was called to order by Dr. W. R. Goff, president, at 9:00 p. m. Minutes of the last meeting were read and approved.

Dr. Goff gave a report of the audit of Parkersburg Hospital Service and indicated that the services of the business manager had been terminated as of April 8, 1939.

Dr. J. L. Wade moved that two new members of the Board of Directors of Hospital Service be elected every second year so that each member serves for a period of two years instead of one year.

The following delegates were elected to the State Convention: Dr. R. H. Boice and Dr. R. S. Widmeyer for two year terms; Dr. Wade for one year term.

Dr. Wade moved that all physicians close their offices on Thursday afternoons and evenings.

Dr. Phillip W. Brown of the Mayo Clinic, Rochester, Minnesota, was the guest speaker at the May 11 meeting of the Academy of Medicine of Parkersburg and there was a fine turnout for this occasion. His subject was "Diagnosis and Treatment of Lesions of the Small Bowel", which was most interesting and practical and provoked a good discussion.

A. C. WOOFTER, *Secretary*.

POTOMAC VALLEY

The regular meeting of the Potomac Valley Medical Society was held at the Potomac Valley Hospital, Keyser, on the evening of April 28. The essayists of the evening were Dr. William F. McFarland and Dr. Francis Spotts of Keyser. Dr. McFarland read a paper on the use of sulfapyridine in pneumonia and Dr. Spotts discussed the laboratory phases.

Following these interesting papers, a cinema program was given on thyroidectomy, cesarean section and removal of cerebellar tumors.

E. A. COURRIER, *Secretary.*

SULFANILAMIDE IN EYE DISEASES

The effectiveness of sulfanilamide in treating certain diseases of the eye is undoubtedly due to the fact that the drug penetrates the optic tissues and fluids fifteen minutes after being taken by mouth, John G. Bellows, M. D., and Herman Chinn, Ph.D., Chicago, state in *The Journal of the American Medical Association* for May 20.

Since sulfanilamide taken by mouth penetrates into the eye so quickly and the levels attained are so high, there is little reason to give it by any other route when diseases of the eye are treated.

Woman's Auxiliary

FAYETTE COUNTY

The Woman's Auxiliary to the Fayette County Medical Society met on April 27 at a one o'clock luncheon in the Faymont Hotel, Montgomery. Mrs. Ralph Hogshead, president, presided. There were eight members present and two guests. Mrs. R. H. Walker spoke on the "Prefix Doctor Bill and Recent Medical Legislation."

New officers were elected.

ELIZABETH K. DAVIS, *Secretary.*

RALEIGH COUNTY

Mrs. E. S. Dupuy of Beckley was elected president of the Woman's Auxiliary to the Raleigh County Medical Society on April 24, at the Auxiliary's luncheon meeting in the Beckley Hotel. Seventeen members were present. Mrs. G. C. Hodges of Mount Hope gave a review of "One Hundred Million Guinea Pigs" by Arthur Kallet and Frederick Schlinx.

Other officers elected at this meeting were:

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Mrs. George W. Johnson. McAlpin, first vice president; Mrs. K. M. Jarrell, Beckley, second vice president; Mrs. W. G. Moran, Fireco, third vice president; Mrs. Ira Fisher, Stotesbury, recording secretary; Mrs. W. C. Mays, Stanaford, corresponding secretary; Mrs. W. C. Covey, Winding Gulf, treasurer.

MRS. DUDLEY C. ASHTON, *Secretary*.

MARION COUNTY

The Woman's Auxiliary to the Marion County Medical Society met on April 25 in the Hotel Fairmont, Fairmont, West Virginia. Mrs. John P. Helmick, president, presided and fourteen members of the Auxiliary were present. Mrs. L. R. Lambert reviewed two books, "Consultation Room" and "Health Insurance with Medical Care." Officers for next year were elected. They are as follows:

President, Mrs. J. R. Tuckwiller; president elect, Mrs. C. L. Parks; vice president, Mrs. Emery D. Wise; recording secretary, Mrs. J. W. Davis, and treasurer, Mrs. John P. Trach.

BLAKE LEMLEY RAMAGE, *Secretary*.

Public Health

The material in this monthly column is compiled and furnished by the West Virginia State Health Department

RAPID X-RAY UNIT

The Powers Rapid X-ray Service visited seven high schools in Kanawha County, April 12-14 and made 607 chest pictures of students, teachers and others. The tuberculin test was given to 2,798 students, 20 per cent, or 551 of whom reacted positively. The sound film, "Behind the Shadows," was shown to 2,040 students at eight high schools and "Let My People Live," was shown at four negro high schools to 1,275 students. The program was directed by Dr. Leo Mynes, school medical director. The Powers X-ray Service is being used also in Fayette and Wood counties. This plan is used for screening large numbers of apparently healthy children and adults.

NEW SANITARY LAW

The new sanitary law, designed to give the State Department of Health and all authorized repre-

A CONVENIENT OFFICE TREATMENT FOR TRICHOMONAS VAGINITIS

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Complete remission of symptoms and removal of the trichomonad from the vaginal smear usually is effected following the Silver Picrate treatment for trichomonas vaginitis.

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sentatives, broader powers over all sanitation in West Virginia, was passed by the legislature on March 4, and becomes effective June 4, 1939.

In addition to providing legislation authorizing the Public Health Council to adopt and enforce regulations concerning all public water systems, sewerage systems and sewage treatment plants, swimming pools and excreta disposal methods in West Virginia, the law also gives the State Health Commissioner or his authorized representative, the power to issue an order to correct any improper condition where upon investigation "any system or method of plumbing, drainage, water supply, excreta disposal or garbage or refuse disposal, whether publicly or privately owned, is such as to endanger the public health or is creating a nuisance that is detrimental to health."

A fine of not less than ten dollars nor more than one hundred is the penalty for violating the act and may be tried in a justice of the peace court.

To the traveling public much of the beauty of West Virginia is lost because of some of the unsightly and insanitary conditions prevailing along the highways at service stations, lunch rooms, tourist camps, etc.; also, many diseases may be traced to these conditions.

During the coming spring and summer months health officers will be asked to cooperate in an intensive program to eliminate insanitary conditions along the highways of West Virginia.

WHITE SULPHUR RATES

Convention rates at the Greenbrier Hotel for the forthcoming White Sulphur Springs meeting will be the same as last year—ten dollars per day on the American Plan.

Suitable accommodations at a lesser rate may be obtained in the village of White Sulphur Springs and members who stay in the village will have all convention privileges at the Greenbrier. The following rates, on the European plan, have been quoted by the village hotels.

Hotel Alvon: Room without bath, $1.75 single; $2.50 double. Rooms with bath, $2.50 single up to $4.50 double.

Hotel West Virginian: Single room with bath at $2.00 per day. Connecting rooms with bath for four persons, $5.00 and $6.00 per day.

Mental disease often follows on intolerable conditions of living; mental defect is associated with impoverishment of stimulation; delinquency comes with neglect and wrong guidance.—*Hygeia.*

IT HAS STOOD THE TEST

THE one urge that transcends all others in the physician's mind when he prescribes a feeding formula for a baby is to obtain the best physical development of which the child is capable.

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1. In stabisol the particles of bismuth subsalicylate tend to remain longer in suspension than is the case in ordinary preparations, and if the particles do settle down on standing, they can readily be shaken into suspension again.

2. The viscosity of the suspension is reduced below that of plain olive oil, and because it is more fluid, stabisol can easily be drawn into and ejected from a hypodermic syringe. Thus a smaller needle may be used, facilitating the injection and reducing the amount of tissue injury. The syringe and needle are easier to clean afterward.

3. Injections of stabisol are less painful than with ordinary bismuth subsalicylate in oil not containing a local anesthetic and requiring a larger needle for injection.

Each cc. of stabisol contains two grains (0.13 gm.) bismuth subsalicylate, equivalent to 75 mg. metallic bismuth, with three per cent chlorbutanol (local anesthetic) and 0.03 per cent mercurated chlorxylenol (antiseptic). The vehicle is 80 per cent specially treated, decolorized olive oil and 20 per cent ethyl oleate, containing small amounts (about 0.015 per cent) of calcium oleate and water to aid in stabilizing the suspension.

Stabisol is supplied in 60 cc. diaphragm cap containers. Advantages of the container are: ease of handling, neatness, avoidance of any contact between metal and solution, and minimum chance of contamination.

The average dose of stabisol is one cc. once a week in courses lasting eight to twelve weeks, depending upon the individual need and reaction.

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the surgeon's fingers deft with scalpel and ligature is at work in the beautiful examples of sculpture and carving. The eye that so quickly and accurately evaluates the gradations in color and texture between normal and pathologic tissue coordinates the hand that wields the painter's brush. The man who chooses medicine as his life's work is largely motivated by a love for his fellow man, else he would select a vocation offering greater monetary reward. From the beginning, he is trained to exercise his powers of observation, and in time develops imagination, sympathy, understanding, philosophy and reverence, all of which are the very essence of art. Moreover, he deals with that most exquisite form of divine art and beauty, the human body.

"An artist-physician has said: 'The tendency of most persons is to regard the artist with awe as a superman endowed with talents not vouchsafed to the ordinary mortal. Most doctors have a latent artistic sense which may be developed to a remarkable degree by constant practice. When opportunity affords, slip away to the park or country, sit down on a camp stool and practice sketching from nature. At first the results may not be satisfying, but in course of time you will be gratified to notice a marked improvement. An ample sketching kit may be purchased for a small sum and any local artist will be glad to give you instruction.'

"At the least, every physician is able to develop a sensitiveness to and an appreciation for fine art. He can also cultivate a hobby which if not one of the fine arts, is in the class of 'work by the side of work.' Dr. Charles A. Dana, who has always stressed the value of cultural medicine, has advised: 'Be a collector, for example, of stamps or automobiles, or old books, or neckties or pins; or find diversion in some collateral branch of science; the lore of birds, of fishing and shooting. Make a garden or cultivate shrubs and flowers. These kinds of activities will make your life happier and your professional character more attractive and effective.' "

—Quoted from "Parergon," published by Mead Johnson & Company, Evansville, Ind. Free copy available on request.

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TYPHOID DEATHS

A further reduction of the death rate from typhoid in large cit'es of the United States, from 0.82 per hundred thousand of population in 1937 to 0.74 in 1938, is revealed by the American Medical Associatoin's twenty-seventh annual typhoid report, published in its *Journal* for May 13.

This represents a reduction in actual deaths from 365 to 318.

Some conception of the tremendous strides made in reducing the toll of this disease is obtained from a comparison of the typhoid death rate per hundred thousand in 1910 with that in 1938. In 1910 the rate was 20.54, representing a total of 4,637 deaths out of a population of 22,573,435, which included seventy-eight cities. With one or two minor excep-

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tions the death rate has consistently dropped each year since then.

Despite this decrease, it was not until 1930 that any city reported no deaths, when ten attained this record. The first year in which no city reported a rate of 10.0 or over was 1933; since that year no city has slipped back into so high a rating.

In 1938 twenty-nine of the ninety-three large cities studied reported no deaths, as compared with twenty-seven in 1937 and eighteen in 1936. Thirty-four cities had a death rate from 0.1 to 0.9 per hundred thousand in 1938, as compared with twenty-six in 1937 and thirty-six in 1936.

The figures for the report were obtained largely from city health officers, who were requested to give the number of deaths from typhoid both among residents and among nonresidents recorded during the year. Paratyphoid was not included. Local estimates of population furnished by the health officers were generally used to compute the rates.

The lowest rate, 0.35, was reported from cities in the East North Central states (Illinois, Indiana, Wisconsin, Ohio and Michigan), while the West North Central cities (in Kansas, Missouri, Nebraska, Minnesota and Iowa) ranked second and the Middle Atlantic cities (in New York, New Jersey and Pennsylvania) third.

The importance of nonresidents in increasing the death rate reported from many cities is brought out by the survey. "Local circumstances beyond the control of the public health officer frequently require the hospitalization in large cities of patients who belong in the surrounding rural communities," the report says. Large cities, especially in the South, serve as hospital centers for areas which are without adequate means of caring for communicable diseases and frequently suffer from the want of whole-time local public health supervision.

BLOOD INSTITUTE

The University of Wisconsin Medical School is to conduct an Institute for the Consideration of the Blood and Blood-Forming Organs, September 4-6, 1939. The program is to include papers and round-table discussions by European and American workers in the field of hematology. Physicians and others who are interested are cordially invited. A detailed program may be obtained by addressing Dr. Ovid O. Meyer, chairman of Program Committee, University of Wisconsin Medical School, Madison, Wisconsin.

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THE CLINICAL VARIANTS OF CORONARY ARTERIOSCLEROSIS*

By HOWARD R. SAUDER, M. D.
Wheeling, West Virginia

We meet tonight to honor the outstanding pioneer in the practice of scientific medicine in this entire district, one, who by his efforts and his kindly offices has tremendously elevated the standards of medical practice, yet one who retains in superlative degree a thorough understanding of the art of medicine. The worth of his counsel can be fully appreciated only by those who have been privileged to receive it. Limited only by physical infirmities, he is not content to rest upon past accomplishments but devotes a certain portion of each day to reading of the newer developments in science and medicine. It is a compelling challenge to us and to our future colleagues to carry on the spirit, the humanity and, withal, the excellence of the achievements of Doctor Jacob Schwinn.

During recent years there has been a gradually progressive increase in deaths due to heart disease. In Massachusetts, White[1] reports that the cardiac death rate per 100,000 has risen from 124 in 1915 to 341 in 1935. Other estimates are in general accord with his findings. The validity of such estimates has been seriously questioned by some investigators;[2] nevertheless, the increased incidence of death from heart disease, particularly of the degenerative types, to which all agree, has given rise to much concern. Chief among the reasons advanced to explain such findings are: (1) the increased recognition of heart disease, particularly in its more obscure forms; (2) the increased stress and strain of modern living, and (3) the operation of the causative factor or factors, as yet unknown, over a longer period of time because of increased life expectancy.

THE AUTHOR

Dr. Sauder, graduate of Western Reserve, specializes in internal medicine and cardiology, is a Fellow of the American College of Physicians, and is certified by the American Board of Internal Medicine.

*The Annual Jacob Schwinn Lecture read before the Ohio County Medical Society on November 11, 1938. From the Department of Medicine, Wheeling Clinic, Wheeling, West Virginia.

In keeping with the increasing frequency of death from heart disease, coronary artery disease seems more prevalent. One cannot escape the conviction that this disease is actually increasing in frequency particularly when one now occasionally encounters thrombosis during the third decade, although ten years ago it was rare to find it in the fourth. Intensive clinical and experimental studies have emphasized the variability of the clinical manifestations of coronary artery disease. It is the primary purpose of this paper to discuss with you some of these variants.

HISTORICAL BACKGROUND*

In 1768, William Heberden laid the foundation for our present concepts of coronary artery disease when he presented his classical description of angina pectoris, based upon bedside observations of about one hundred patients who suffered from this malady. He did not attempt to explain the causes or the associated pathological changes. If he suspected any relationship to disease of the coronary arteries, he did not make mention of it in his original description. His contemporary and friend, John Hunter, from the age of 45 to his sudden death at 65, suffered repeated attacks and must have been fully cognizant of the clinical picture. In 1776, he performed an autopsy upon a patient of John Fothergill. His report included this statement: "The two coronary arteries from their origin to many of their ramifications upon the heart were become as one piece of bone." However, to another contemporary, Edward Jenner, is given the credit for the suggestion that angina pectoris arose from "ossification or some similar diesase of the coronary arteries." In 1809, eight years after Heberden's death, Allan Burns advanced the theory, which is most generally accepted today, that the pain of angina pectoris is due to relative myocardial ischemia, brought about by incompetent, inelastic coronary arteries.

It may be safely assumed that many, if not all, of these early cases, diagnosed clinically as angina pectoris, died of coronary thrombosis. However, it was to be many years before this mechanism of death was recognized. In 1854, William Stokes said: "Obstruction of the coronaries may or may not be present and is probably not infrequent; but as the cause of angina, its action is remote, and its existence unnecessary."

George Dock is credited with the first antemortem diagnosis of coronary thrombosis in 1896. His diagnosis, made only upon bedside observation, was "myomalacia following coronary sclerosis with secondary pericarditis." Autopsy on the next day showed thrombosis of the descending branch of the left coronary artery and a resulting infarct.

As early as 1896, we know that Osler was thoroughly familiar with the symptoms and associated pathological changes of coronary artery disease, particularly coronary thrombosis. It was he who referred to the descending branch of the left coronary artery as "the artery of sudden death." But to him it seemed that coronary thrombosis was but an incident, often a concluding one in the course of angina pectoris, in spite of the fact that he noted "that the scars of infarcts have been found years after recovery from attacks of angina pectoris."

In 1912, Herrick,[4] in masterly fashion, described the clinical symptoms and signs and some of the associated electrocardiographic findings of coronary thrombosis. He emphasized that this was not always a fatal disease but that in milder cases recovery often took place if proper treatment was given. Even then, the profession did not follow the lead. It was only after his second paper in 1918[5] that these teachings gained widespread acceptance. Since then, the clinical features have become so well defined that a fourth year medical student deserves severe criticism if he fails to recognize the disease in its classical form.

PRESENT CONCEPTS OF CORONARY DISEASE

During the last twenty years there has been a rapid evolution of opinion, based upon in-

*In this section, the author has borrowed freely from the recent paper of Fulton,[3] to which the reader is unreservedly referred for an excellent historical resume of this subject.

tensive clinical and experimental investigation, leading to our present concepts of coronary artery disease. Such concepts imply that in all but the exceptional case, angina pectoris is but one of the manifestations of impaired myocardial nutrition; that usually coronary thrombosis is a special pathological episode, often fatal, in the course of coronary arteriosclerosis; that slowly progressive impairment of coronary blood flow, can and does give rise to progressive myocardial degeneration, leading rapidly or slowly to heart failure according to the intensity of stresses and strains thrown upon the injured heart muscle; that the clinical features of practically all forms of so-called degenerative cardiovascular disease are conditioned either directly or indirectly by the coronary arteries.

CORONARY BLOOD FLOW IN HEALTH AND DISEASE

Since the essential pathogenic factor in coronary heart disease is impaired myocardial nutrition, chiefly anoxemia, it would be well to mention in review a few of the physiological attributes of the normal coronary system and then to inquire into how they are altered by disease.

Because of the tension developed within the contracting heart muscle during systole, the coronary blood flow is markedly slowed if not altogether arrested.[6] Therefore, the maximal flow occurs during diastole. This diastolic flow is further conditioned by the gradient of intra-aortic pressure. Should there be failure to sustain a favorable diastolic pressure level, occasioned by aortic insufficiency or by a marked lowering of the peripheral resistance, such as occurs in shock, then the rate of flow through the coronaries will be markedly reduced. Furthermore, any process which increases the heart rate at the expense of diastole will likewise reduce the effective flow.

It has been shown that the normal coronary artery is richly supplied with efferent neurons of both constrictor and dilator types,[7] the latter usually predominating in mass effect. In disease, however, the constrictor effect may become the more prominent, either because of the inability of the arteries to dilate, i.e., sclerosis of the wall, or because of an actual increase in constrictor stimulation. However, in health, the coronary inflow is delicately regulated according to the nutritional demands of the myocardium. An increase of heart work is at once accompanied by an augmented blood supply by virtue of (1) an elevation of intra-aortic pressure, and (2) an active dilatation of the coronary vessels. A heart muscle thus normally supplied with blood can increase its work many fold and continue to do so for many years without showing signs of failure. Conversely, the normal load may be sufficient to induce failure if the adaptability of the coronary flow is lost.

What are the pathological factors, which by their presence impair the integrity of the coronary circulation? As you all know, arteriosclerosis esesntially of senile type leads the field. Next should be mentioned luetic occlusion of the ostia of the arteries and rheumatic arteritis. Then follow such rarities as thromboangiitis obliterans, congenital coronary malformations and coronary embolism. It should also be noted that circulation through intact coronary arteries is reduced in aortic valve lesions, both insufficiency and stenosis, in prolonged attacks of paroxysmal tachycardia and in certain toxic and functional states. For all practical purposes, and certainly for the purposes of this paper, we can limit our attention primarily to coronary arteriosclerosis.

ETIOLOGICAL FACTORS IN CORONARY DISEASE

What is known of the etiology of this disease? The answer for this is the same as for arteriosclerosis in any part of the body. Many theories have been advanced and there has been most extensive investigation and much speculation. But as you know, to date, no single known factor nor combination of factors can be considered a satisfactory explanation. One significant fact stands out above all others; namely, the influence of heredity upon the development of coronary arteriosclerosis. Personal inquiry into this problem has shown a relatively high incidence of

cardiovascular degenerative disease in one or both parents, particularly in cases where severe coronary disease manifests itself at an early age. The influences of our present high-tension mode of life, of the excessive use of tobacco,[8] of intemperate eating and drinking, of increased exposure to carbon monoxide fumes,[9] all have been variously investigated and discussed. It does seem that the present generation is more exposed to the causative factor or factors than the last, and that they in turn were more influenced thereby than the second generation back. For the present may be not assume that certain individuals, whether by heredity or otherwise, are destined to develop degenerative changes, and that the prematurity of such changes is conditioned by exposure to one or many noxious factors, which in themselves are not capable of producing such disease.

PATHOLOGICAL CONSIDERATIONS

What are the pathological alterations in the myocardium which has been exposed to prolonged progressive anoxemia? Briefly stated, the areas so involved eventually lose their function and become fibrosed. Abrupt and total interruption of the blood supply, such as occurs in acute coronary occlusion, induces local death of tissue, with subsequent necrosis, and, if the patient survives long enough, repair by fibrous tissue replacement. Pathological studies[10 11 12] have shown that in the greater majority of instances, coronary sclerosis is not limited to a single vessel or major branch thereof, but that it tends to be widespread, usually more advanced in one particular area.

There has been considerable disagreement as to whether coronary insufficiency can of itself induce hypertrophy of the heart.[13 14 15] It may be concluded that the hypertrophy which is commonly present in coronary artery disease, in the larger percentage of cases, is to be explained on the basis of preexisting or concomitant hypertension, but that the heart can hypertrophy in the absence of any factor which increases the work of the heart, such as hypertension, valvular disease, etc.

THE COLLATERAL CIRCULATION

When coronary circulation is impaired, either by slowly progressive sclerosis or by sudden complete occlusion, the blood supply to the affected areas can, at least in part, be maintained by the development of a collateral circulation. The subsequent duration of life depends to a large degree upon this compensating process. What are some of the factors involved in its development?

In the normal heart, anastomotic channels have been demonstrated between the larger rami of a coronary artery and other coronary vessels. There are also potential anastomoses with extracardiac vessels and with the interiors of the right and left ventricles. However, these anastomoses are not sufficient to prevent infarction if a major branch is occluded and therefore the normal coronary arteries may be considered true end arteries.[16 17 18] But under pathological conditions there may be such an increase in the calibre of these communications that adequate nourishment is maintained even with complete occlusion of a major artery. The development of collateral circulation depends upon the previous existence of an obstructive lesion in the coronary system. The very excellent pathological studies of Schlesinger[19] have shown that such anastomoses develop readily whenever and wherever arteriosclerotic narrowing or occlusion causes obstruction in the coronary circulation. He further demonstrates that collateral circulation does not develop solely due to increase of age, and that when it does appear, it is localized to the areas where it is needed.

CLINICAL MANIFESTATIONS OF CORONARY DISEASE

Impaired coronary circulation commonly becomes manifest by evidence of failure of the left ventricle. The symptoms and signs indicative of left-sided failure are (1) exertional dyspnea, (2) paroxysmal nocturnal dyspnea, (3) evidences, both physical and röentgenological, of pulmonary stasis in the absence of peripheral edema, (4) protodiastolic gallop rhythm and (5) pulsus alternans. As the condition becomes more advanced,

signs of right ventricular failure often appear —peripheral edema, engorgement of the liver, ascites and hydrothorax. In the absence of such diseases as produce strain primarily on the left ventricle by increasing its load—hypertension and aortic valvular lesions—the appearance of left ventricular strain is in itself highly indicative of the presence of coronary artery disease.[16]

GOVERNING FACTORS

The variability of the clinical picture of coronary arteriosclerosis depends, in large part, upon the following factors:

(1) The pain or discomfort threshold of the patient: In this disease, as in all others, the patient's sensitiveness, not only to discomforting but even to normal sensations, conditions the complaints and some of the objective findings. Usually pain is an outstanding complaint in coronary artery disease. But it is a well known fact that certain patients do not complain of pain even with coronary thrombosis.[10 19 20 21]

(2) The extent and distribution of the arterial disease: Coronary arteriosclerosis as found at autopsy, is usually widespread and not confined to one particular part of a single vessel. In general, it is obvious that the more extensive the process, the more pronounced the clinical manifestations. However, impaired blood supply to a small but physiologically important area may quickly give rise to most profound symptoms and signs.

(3) The rapidity of development of the obstruction to blood flow: The more rapid the changes, the more severe will be the clinical manifestations of the disease. This is a corollary of the extent and adequacy of collateral circulation. Because of the time factor, its development is favored by slowly progressive obstruction.

(4) The presence of other factors or diseases which increase the work of the heart: Coronary arteriosclerosis even of moderately advanced degree may be present without manifesting itself by significant symptoms. Hypertension, valvular lesions, particularly of the aortic valve, anoxemia of extracardiac origin, severe grades of anemia to mention only a few, may initiate the symptoms of myocardial strain, intensify those which already are present or actually produce heart failure. Paroxysmal disturbances of the heart rhythm may induce rapidly progressive congestive failure and give the first evidence that coronary artery disease is present.

Solely for the sake of presentation, the clinical manifestations of coronary arteriosclerosis will be arbitrarily divided into three groups: (1) angina pectoris, (2) coronary sclerosis and (3) coronary thrombosis. A few abbreviated case reports will be given to illustrate only some of the varying clinical pictures. It should not, in any sense, be assumed that there is a dividing line between them; one group may merge imperceptibly into another. Consider them rather as stations in the progressive journey to dissolution, realizing that there may be privilege for long stopovers along the way—according to the graces of nature; but also that the trip may be concluded precipitously at any stage.

ILLUSTRATIVE CASES

Case 1. Angina pectoris with a minimal degree of coronary arteriosclerosis: A white male, forty-two years of age, robust and of the transverse type of build had enjoyed excellent health until six months prior to examination. At this time, he began to notice dull aching pain in the lower substernal region when walking up a slight grade at the usual pace. If he slowed his gait the pain would be relieved, but if he continued his exertion the pain assumed a more severe boring character and was radiated into the upper substernal region, accompanied by a mild throttling sensation. There was no radiation into the arms. Except for mild exertional dyspnea, there were no other complaints.

Detailed physical and fluoroscopic examination revealed no abnormalities. The electrocardiogram was normal except for slight slurring of the R wave in the precordial lead. To date, there have been no unfavorable developments. Nitroglycerine relieves the pain promptly and its prophylactic use has increased the range of activity.

Case 2. Angina pectoris with clinical evidence of coronary arteriosclerosis: A white, oil field worker, aged fifty-two, began to suffer characteristic attacks of angina of effort eighteen months ago. The pain

began as a dull ache in the midsternal region, rapidly increasing in intensity and radiating into the left shoulder and the inner aspect of the left arm as far down as the elbow. His exercise tolerance had been progressively reduced by pain and by dyspnea. Six months ago he began to have occasional attacks of pain coming on during sleep and on several occasions has had mild nocturnal dyspnea.

Examination revealed slight left-sided enlargement of the heart; prominence of the ascending aorta; blood pressure, 168/94; no evidence of congestive failure. Electrocardiogram showed slurring of the Q R S complexes in all leads and an inversion of T-1.

Under a program of restricted activities, dietary control and the use of nitroglycerine and whiskey, there has been marked subjective improvement.

ANOXEMIA OF HEART MUSCLE

The pathogenic basis for angina pectoris is anoxemia of the heart muscle. This is due, in the vast majority of cases, to coronary artery disease although there is a small percentage of cases in which the anginal syndrome is related to other causes.[16] The almost universal relief of the pain by vasodilators and certain other clinical characteristics, suggest that spasm of the arteries is a prominent factor. However, if this is the case, we deal with spasm of abnormal arteries.

It is important to note that the initial pain in an attack is usually of dull aching nature. As the attack develops it may become unusually severe, accompanied by other sensations such as throttling, choking, burning, sense of pressure, etc. The intensity and final character of the distress depends upon the sensitiveness and the nervous constitution of the patient. The fear of impending death usually is present only in the hypersensitive group.

The usual location of the pain is substernal, but it may be precordial or epigastric with radiation into one or both sides of the chest, into the neck, shoulders or arms. In some cases the pain begins in a remote region, particularly the left arm or forearm, and radiates toward the substernum. In other instances the location of the anginal pain is in areas previously sensitized by the presence of other painful disease;[22] for instance a patient with arthritis of the left shoulder joint may localize pain in an anginal attack to this region. If the pain is localized far to the left of the midline without later radiation to the substernal area, particularly if it be of sharp stabbing or cutting nature, one is justified in withholding a diagnosis of angina pectoris.

Fully twenty per cent of cases of angina pectoris show no abnormal findings by physical, x-ray or electrocardiographic examination, and the diagnosis must be made entirely on the history.[39] Diagnostic requirements include (1) a careful consideration of the character and location of the pain, (2) relation of the onset of the pain to a provocative factor (exercise, emotion, exposure to cold), and (3) a paroxysmal attack of short duration usually promptly relieved by vasodilator drugs.

Case 3. Coronary arteriosclerosis. Myocardial degeneration. Bundle branch block: A retired farmer, aged sixty-five, was first examined in 1931 complaining of urinary frequency, burning and retardation of the stream. Specific questioning showed no cardiovascular symptoms and there was no history of antecedent significant disease. His father died of apoplexy at 84; his mother died suddenly at the age of 80.

Examination showed marked sclerosis of accessible vessels, slight left-sided enlargement of the heart, a soft blowing systolic murmur at the apex, a distant early diastolic murmur in the aortic region and demonstrable enlargement of the aorta; blood pressure, 146/82; no signs of congestive failure; blood Wassermann negative; electrocardiogram negative except for left axis deviation.

MILD DYSPNEA

Three years later the patient noticed very mild dyspnea with uphill walking but no other complaints. The heart had enlarged slightly since the last examination and it was noted that the first sound at the apex was reduplicated. Blood pressure, 156/90. Electrocardiogram same as before.

In 1936, the patient noticed increased dyspnea with exertion accompanied by a sense of fullness in the upper substernal region. There were several attacks of mild nocturnal dyspnea. Examination showed a few moist râles at the lung bases. There was marked reduplication of the first sound at the apex. The electrocardiogram showed a complete

left bundle branch block. Because of increased urinary complaints, operative relief for prostatic obstruction was imperative. In the face of the cardiac changes, prostatectomy was advised against without a period of preparatory treatment. Suprapubic drainage was instituted and the patient returned to his home. Five months later, he was free of cardiovascular complaints. The heart had not changed in size. Reduplication of the first sound remained and the electrocardiogram showed persistence of the bundle branch block. Prostatectomy was done by Dr. R. D. Gill at this time. The postoperative course was free of any cardiovascular complications.

During the last year there has been increasing evidence of left-sided failure, including dyspnea with exertion, nocturnal paroxysmal dyspnea, and pulsus alternans. As yet there has been no indication of right-sided failure.

Case 4. Coronary arteriosclerosis. Aortic insufficiency. Congestive heart failure: A banker, fifty-four years of age, was examined in 1928, several months after a routine life insurance examination had revealed a systolic murmur. His only significant complaint was an occasional dull aching pain over the precordium, sometimes radiated to the upper substernal region. Its onset usually followed exertion after a heavy meal. It was quickly relieved by the eructation of gas. He specifically denied dyspnea, weakness or palpitation with exertion. The past history was negative. He had had semiannual health examinations for many years. Review of the records of these examinations showed no signs of heart disease and normal blood pressure values. The patient's father died suddenly of heart disease in his early seventies.

Examination showed no enlargement of the heart. In the aortic area there was a coarse rough systolic murmur. The normal second sound was followed by a short low pitched blow. The blood pressure was 120/75. Electrocardiogram entirely normal. Blood Wassermann negative. Restriction of activities was recommended and frequent check-up examinations were advised.

Ten years later the patient returned complaining of severe attacks of nocturnal dyspnea, often of asthmatic type. Marked dyspnea was induced by the exertion of ordinary walking. There has been no swelling of the ankles. There was occasional severe substernal pain induced by excitement or exertion. Overexertion during the daytime usually reflected itself chiefly by increased severity of paroxysmal dyspnea during the following night. Examination showed Cheyne-Stokes respiration,- moderate en largement of the heart, evidence of marked aortic regurgitation, blood pressure 158/70, a few moist râles at the lung bases but no peripheral edema.

In spite of intensive efforts at therapy, the patient's condition rapidly became worse. Marked congestive failure developed four months later but the evidences of left ventricular failure predominated until death.

ANGINAL PAIN

Pain of anginal nature or one of the recognized pain equivalents usually constitutes a part of the picture of the heart disease which results from chronic coronary insufficiency. The presence of classical angina, even of mild degree, will assist greatly in the diagnosis. It is unfortunate that a considerable number of patients with even advanced grades of coronary arteriosclerosis have either very mild pain or none at all. Brill[16] states that nearly fifty per cent of patients with extensive coronary artery disease never exhibit anginal pain. In 242 consecutive autopsied cases who showed varying degrees of coronary sclerosis, Polanco[23] found an antecedent history of cardiac pain in only fifteen per cent. In a similar study of 476 cases, Bruenn and his associates[24] report pain in twenty per cent. However, in Polanco's series, 91 per cent of those who had pain showed marked sclerosis and nine per cent a moderate grade of sclerosis. None of the cases showing slight sclerosis had pain. It is likely that many of the cases of both series did not suffer from insufficiency of coronary blood supply in spite of the presence of the sclerosing lesions. Gross[14] has shown that the coronary arteries of persons in the fourth decade commonly show changes when these individuals had neither history nor signs of heart disease.

In the absence of anginal pain, the diagnosis will rest upon the development of the symptoms and signs of slowly progressive heart failure first involving chiefly the left ventricle, but later on also the right, after excluding the other pathogenic factors which lead primarily to left-sided failure, principally persistent marked hypertension and aortic

valvular disease. At times, the development of transient or persistent alterations of heart rhythm, especially certain cases of auricular fibrillation, auriculoventricular heart block, bundle branch and intraventricular block will give the first clue to the underlying disease. Electrocardiographic changes may be characteristic, or at least suggestive. However, the electrocardiographic findings are not in proportion to the extent or the severity of the myocardial changes. Furthermore about fifteen to twenty per cent of the patients suffering from coronary disease show no significant changes in the tracings. In a small percentage of cases on the other hand, correct diagnosis is only possible on the basis of electrocardiographic findings.

Hypertension is very frequently present in coronary artery disease.[26] As a matter of fact, this diagnosis is seldom justified in the female in the absence of hypertension or diabetes.[25] The presence of marked hypertension frequently renders it difficult to decide whether the cardiac breakdown is due to coronary disease or to the hypertension. But it is also interesting to note that a very large percentage of patients who die of cardiac failure in hypertensive disease show significant degrees of coronary artery disease at autopsy.[14 27 38 29 30] Fishberg states that coronary arteriosclerosis is the most common cause of cardiac death in hypertensive patients, and similar views are held by many others. It should be mentioned in passing that the absence of antecedent hypertension cannot be assumed only from normal or subnormal blood pressure values in the presence of congestive failure.

CORONARY THROMBOSIS

We come now to the outstanding complication of coronary arteriosclerosis, coronary occlusion, which in the majority of cases is due to thrombosis. It may be the first recognizable manifestation of coronary disease or it may be preceded by long continued evidence of coronary insufficiency. Practically all of the cases at autopsy show evidence of preexisting disease in the same artery which is occluded.[18] It has been shown that about 40 per cent of the cases have had anginal pain before occlusion occurred.[26 31 24] The actual precipitating factors are less well known. It is not uniformly attributable to exertion or excitement, for many times it appears during sleep. Bean[26] calls attention to medical or surgical shock as an active precipitating factor. Many times it appears during the convalescence of infectious disease, even of trivial nature. It has been concluded that the excessive use of tobacco or alcohol cannot be considered of significance. The seasonal incidence is of interest; its occurrence is highest in springtime; then in order follow autumn, winter, and summer.[11]

SYMPTOMS

The classical symptoms of acute coronary thrombosis are so well known that no further mention need be made of them. The more intensive the clinical search, the larger the number of atypical cases which are recognized. These cases are probably to be accounted for by (1) relatively small occlusions in unimportant areas, (2) hyposensitiveness of the patient to visceral sensations, and (3) the presence of other symptoms or complicating factors which overshadow the picture.

The cases of coronary thrombosis may roughly be divided into four groups according to the manifest symptoms of the attack.

(1) Those who died precipitously at the onset of thrombosis.

(2) The classical type of case, which after the sudden onset, manifests the usual symptoms and signs and either dies during the first few hours, days or weeks, or survives the immediate attack to succumb in a later attack; or develops progressive signs of myocardial weakness during the following months or years. Complete recovery is the decided exception to the rule.

(3) The case who manifests his attack by the sudden appearance of marked signs of insufficiency of the left ventricle without acute pain. This type is not infrequently encountered during the course of congestive heart failure resulting from hypertensive or arteriosclerotic heart disease.

(4) The asymptomatic case who is unaware of the attack and later develops progressive signs of heart failure or in whom, in rare instances, the lesion heals, to be discovered only at autopsy.

ILLUSTRATIVE CASES OF CORONARY THROMBOSIS

Case 1. A white laborer, forty-two years of age, while bending over to tuck the corner of a rug under a desk, fell to the floor. His employer, thinking that he had merely lost his footing, attempted to help him, but found him dead. Postmortem inquiry showed that the patient always had enjoyed excellent health. In particular, there had been no previous cardiovascular symptoms and when he reported for work on the day of his death, he asserted that he felt very well. Autopsy showed a small atheromatous ulcer in the left coronary artery and complete occlusion of the anterior descending branch by a fibrinous thrombus. Otherwise the heart was normal and there was no evidence of vascular disease elsewhere.

This case typifies the so-called totalitarian type of death with abrupt cessation of consciousness, heart beat and respiration.[11] The mechanism of death is thought to be cerebral, precipitated reflexly by the cardiac accident. In other cases of sudden death, there is abrupt cessation of heart beat with later respiratory failure. The case cited above also illustrates how acute coronary thrombosis may result from a minimal degree of intracoronary disease.

Case 2. A retired merchant, fifty-six years of age, complained of occasional dull aching pain in the lower substernal region and increased breathlessness with exertion in 1929. He submitted to complete examination at a well known clinic and sanitarium, where, after an essentially negative physical examination and a normal electrocardiogram, he was advised to get more exercise in order that he might reduce his weight and was given advice on just how to change the intestinal bacterial flora. After his return home, he took up golf, playing as many as thirty-six holes a day and dieted himself rigorously. On such a routine, his substernal pain and shortness of breath were intensified. Two months later he experienced an attack of severe substernal pain, radiated into the left shoulder and arm, accompanied by free perspiration and marked weakness. The pain persisted for about two hours, but he felt weak and listless for another week. At this time he presented himself for examination which showed slight left-sided enlargement of the heart, a systolic murmur at the apex, moderately advanced sclerosis of the accessible arteries and mild hypertension. Electrocardiographic examination showed evidence of posterior wall infarction.

Under a routine of restricted activities and symptomatic treatment, the patient was free of cardiovascular complaints until 1931, at which time he noticed increased shortness of breath and substernal discomfort incident to effort or excitement. Examination showed slowly progressive left-sided enlargement of the heart, hypertension (190/110), a few moist râles at the lung bases but no peripheral edema. In 1932, he complained of severe pain in the left shoulder region, usually more severe during the night. He was awakened occasionally by pain in this region as well as by transient shortness of breath. A few weeks later he complained of shoulder pain in the daytime with exertion. An x-ray of the shoulder joint showed evidence of chronic osteoarthritis and our inclination was to explain the pain on this basis. However, a few days later, while in quiet conversation with a friend, the patient slumped down in his chair, unconscious and cyanotic and expired within a few minutes. Autopsy showed extensive cornoary arteriosclerosis, a healed infarct on the posterior wall and posterior portion of the interventricular septum, recent occlusion of the left coronary artery just proximal to the origin of the descending branch with a large area of myomalacia in the apical region.

CHARACTERISTICS OF CASE

This case illustrates several points of interest, namely (1) the relatively mild symptoms which preceded and accompanied the first coronary thrombosis, the final diagnosis of which depended to a considerable degree upon the electrocardiographic findings, (2) the absence of precordial or substernal pain in the second attack, the pain of which was present entirely in the region of the chronically diseased shoulder joint[22] and (3) the postmortem findings which clarified an otherwise difficult diagnostic problem and emphasized the author's inaptitude in recognizing the symptoms of the second and fatal attack.

Cases could be cited to typify the third and fourth groups mentioned above, but because of the limitations of time and space, they will be omitted.

PROGNOSIS IN CORONARY ARTERY DISEASE

The prognosis in coronary artery disease is heavily veiled in uncertainty. Definite forecasting of the outcome requires that we know (1) the extent and the location of the causative disease; (2) the rate of advance of the sclerosing processes, and (3) the extent and the efficiency of the compensating collateral circulation. In the present state of our knowledge, we are very much limited in evaluating these factors in the individual case. Frequently the best we can do is to deduce the prognostic factors which apply to the average case, admitting freely that there are almost as many who are expections to the rule as those who follow it. Without doubt the ability to forecast the outcome of a given disease is an art, perhaps founded in large part upon unanalyzable concepts gained by past experience, perhaps in part upon extrasensory perception.

The length of life in coronary artery disease is conditioned to a considerable degree by early correct diagnosis and the subsequent institution of proper treatment. Hence arises the paradox that the mild, atypical case has a poorer outlook than the more severe one whose disease becomes manifest by early and classical symptoms.

Ruling out acute coronary thrombosis, which is largely an unpredictable complication, the most common cause of death in chronic coronary insufficiency is heart failure. Correct prognosis depends upon the prompt recognition of the evidences of failure. Those due to breakdown in function of the left ventricle must be searched for particularly. Persistence of such symptoms and signs means that the patient already "is well on the way." The appearance of such findings may be anticipated by the presence of factors which throw added strain on the left side of the heart.

The presence of angina of effort seems to influence the prognosis little, if at all. Only rarely does death occur in an attack of angina pectoris which is not complicated by thrombosis. Angina which appears at rest, particularly the variety which awakens the patient from sleep, is an indication of grave disease.[32] If such an attack is prolonged and accompanied by a mild grade of shock, it may indicate impending coronary thrombosis.[33 34] Angina of effort may be thought of as a protective mechanism. If pain is produced by effort, the patient is less apt to persist with harmful activities than the one who notices only dyspnea and weakness. Certainly the patient with pain will seek medical aid at an earlier date.

Prognosis is facilitated by frequent check-up examinations to determine the rate of progression of the subjective and objective signs. Progressive enlargement of the heart, particularly in the presence of persistent signs of failure makes the outlook exceedingly gloomy. Likewise, gradual recession of antecedent hypertension with even slowly progressive severity of symptoms forecasts disaster. In the occasional case the only objective manifestations of an unfavorable course are indicated by frequently repeated electrocardiographic examinations.

PROGNOSIS IN CORONARY THROMBOSIS

If all fatal cases are included, the immediate mortality (death within six weeks) averages from twenty to thirty per cent.[35 36] However, the death rate in the first attack has been reported as low as eight per cent; in the second attack, twenty-nine per cent and in the third, fifty per cent. The present optimistic attitude for at least temporary recovery from the initial attack seems justified. To attain low mortality rates it is imperative that the diagnosis be made early and that proper treatment be instituted without delay.

Persistence of the initial state of shock, continued severe pain, relatively high fever and leucocytosis are considered unfavorable signs. They are usually associated with large areas of infarction. The appearance and persistence of signs of heart failure add greatly to the seriousness of the situation, particularly if both the left and right sides are involved. In general, the higher the pulse and respiratory rates, the more unfavorable the prognosis. Difficult to explain is the fact that antecedent or subsequent hypertension does not seem to

increase mortality.[13 31] The prognosis is much worse in those patients, who, before the attack have shown evidences of heart failure, particularly if the heart is enlarged.

During the first few weeks sudden death may result from rupture of the heart, secondary thrombosis, pulmonary embolism or ventricular fibrillation. It is impossible to forecast their imminence but their incidence may be minimized by proper treatment.

In a study of 212 cases who had survived coronary thrombosis by three months or more, Palmer[31] found that 25 per cent were able to lead fairly active lives; in the remainder, dyspnea and anginal pain were the most important symptoms leading to limited activities or invalidism. Subsequent attacks of thrombosis occurred in 28 per cent, about half of them during the first few years. The probability of a return to a fairly active life was almost twice as great in those with normal to moderate sized hearts as in those with marked enlargement.

TREATMENT OF CHRONIC CORONARY DISEASE

Rest: The most important therapeutic indication in coronary artery disease is the limitation of activities such as may be demanded by the severity of disease. In the earlier cases, the activities, including emotion should be so regulated that angina, dyspnea with effort or fatigue are not induced. Further it is well to advise a rest period after each meal and in those who find it obligatory to "stay on the job", to spend one day a week in bed. Particularly must caution be given to avoid sudden straining effort or strong emotions. In more advanced cases a more rigid program must be laid down and regulated according to the stage of the disease.

Diet: Dietary regulation is important particularly in the obese. The diet must be well balanced, easily digestible and free from gas forming foods. Most important of all is to avoid excessive eating at any time, particularly at night. In those who show failure, fluids must be limited and salt intake restricted. Except in impending uremia, there is no indication to prescribe a low protein diet.

Medication: Vasodilator drugs, principally nitroglycerine grains 1/100-1/200, usually give prompt relief from angina. It should be used early in the attack along with cessation of activities in an effort to abort it. It may also be used prophylactically if it is known that a certain necessary activity will invariably be accompanied by pain. Whiskey or brandy often are far superior in action to nitroglycerine and have the further advantage that there is no drop in blood pressure, which may be a desired quality in certain instances.

USE OF DIGITALIS

Digitalis is indicated in the presence of failure, particularly when the heart rate is high or auricular fibrillation is present. Its usefulness is not limited to those who show peripheral edema. Its administration in those with relatively pure left-sided failure is often followed by marked improvement. In coronary disease there seldom is need to attempt to digitalize completely; as a matter of fact, it is usually unwise to do so. If not tolerated by mouth, it may be given per rectum in approximately twice the oral dose. It should not be given in large doses to an edematous patient in whom it is planned to use a drastic diuretic. It has been shown that digitalis is stored in edema fluids and that severe, even fatal poisoning may be induced by bringing a large amount back into the circulation suddenly by the use of an effective diuretic.

Drugs of the xanthine group have long been used in the treatment of the failing heart. Those chiefly used are theobromine and theophyllin. They are mildly diuretic and in certain cases exert a very favorable influence. Various modifications of these drugs are in use but only in the exceptional case are they more effective; always they are more costly. Aminophylline has been very widely used. In the experimental animal it produces a definite increase in coronary blood flow and tends to increase the collateral circulation after coronary occlusion. It is used generally in those cases with the anginal syndrome. It is highly doubtful that the oral use in the tolerated dosages exerts a beneficial effect. By intravenous in-

jection it obliterates Cheyne-Stokes respiration temporarily, and relieves intense paroxysmal dyspnea. Recently I have used it in large doses by rectal suppository. The results to date are encouraging in that it seems to reduce the frequency of anginal attacks, decreases dyspnea and prevents nocturnal dyspnea. Final judgment must be reserved until a larger experience is accumulated.

Mercurial diuretics, chiefly salyrgan and mercupurin have been valuable additions to our therapeutic list. With them, large amounts of fluids may be evacuated from the water-logged patient. Their usefulness is not limited to those with demonstrable fluid retention. They exert a most favorable action on the patient who shows signs of left-sided heart failure. Severe paroxysmal dyspnea is often completely relieved for days at a time. They may be given in one to two cc. doses at three day intervals. Their chief contraindications are acute hemorrhagic nephritis and impending uremia. The administration of acidifying drugs wtih them is said to increase their diuretic effect, but the validity of this assumption is in doubt.

Sedative medication is important in the treatment of coronary artery disease. For the milder cases, bromides, chloral hydrate or one of the barbiturates may suffice. A word of caution—patients with heart failure may quickly show toxic cumulative effects from the use of the barbiturates. In the more severe cases, the opiates should be used in sufficient dosage to promote rest. The nearly specific effect of morphine in the presence of acute pulmonary edema need be mentioned only in passing.

Oxygen inhalation is indicated in the more advanced cases who show marked pulmonary congestion with persistent cyanosis. Its use early in an attack of paroxysmal dyspnea may abort the attack. Its prophylactic value in angina pectoris is being studied.

TREATMENT OF CORONARY THROMBOSIS

As soon as a tentative diagnosis is made, the patient with coronary thrombosis must be put at complete physical and mental rest. In very severe cases, it may not be wise to attempt to move the patient from the place of the attack for many hours or even days. Large doses of morphine will be required to relieve the pain. Good nursing care is highly essential, for, at first, the patient must be permitted no exertion whatsoever. Even the effort of turning in bed may be sufficient to produce death. Complete rest must be continued in any case for at least four weeks and in the more severe case, six to eight weeks. If at the end of this time, the temperature and leucocyte count are normal and there are no signs of heart failure, a gradual resumption of activity may be permitted.

LIQUID DIET

During the first few days the diet should consist only of liquids. If nausea and vomiting are present, much benefit may be obtained by the insertion of a nasal tube into the stomach and frequent irrigations with saline solution. By so doing, repeated vomiting, with intense straining and its often terrifying cyanosis and collapse, may be avoided. Glucose may be given intravenously with precaution if necessary. Masters and his associates[36] recommend a low caloric diet, not to exceed 800 calories per day throughout the period of bed rest, claiming a marked reduction in mortality rate thereby. Although overfeeding must be avoided, caution must also be used to avoid starvation. The myocardium is particularly sensitive to hypoglycemia.

Should congestive failure develop, the fluid intake must be restricted. Diuretic drugs may be employed with caution. There is considerable disagreement regarding the use of digitalis in the presence of coronary thrombosis. Some object to its use because it will produce coronary constriction in the experimental animal and that it produces toxic effects in the presence of infarction. It seems, however, that its use may, at times, be indicated by congestive failure and that carefully administered, will exert a beneficial effect.

The administration of quinidine during the early days of the attack has been recommended[16 38] by some on the assumption that

it will prevent ventricular fibrillation, which is one of the mechanisms of sudden death following infarction. Others[37] doubt its usefulness and some consider that its administration may be actually harmful.

There is no uniformity of opinion in regard to the use of aminophylline. Masters[37] asserts that its intravenous use is at times a life-saving measure and the writer shares this opinion. It probably exerts no effect when given orally but its use by intravenous injection has been continued since no ill effects have been observed from its frequent administration.

Oxygen inhalation is widely used in cases showing marked cyanosis, a prolonged state of shock, intense dyspnea or in persistent pain not relieved by even large doses of morphine. Its use is considered highly important during the first week of the disease. Benefit is evidenced by a clearing of cyanosis, reief of dyspnea, control of pain by smaller narcotic dosage and by a decided reduction in heart rate. When administration is begun, its use should not be discontinued suddenly.

CONCLUSION

The author has attempted to present in review some of the modern concepts of coronary artery disease. The varied clinical manifestations of coronary arteriosclerosis have been discussed. If the prevailing mortality rates of this disease are to be reduced, more attention will have to be given to the recognition of the disease in its earliest stages, permitting the institution of proper treatment while the disease is in its incipiency. This goal will be attained only by tireless continuation of clinical, experimental and pathological investigations.

I wish to close with this personal tribute to Doctor Schwinn:

There are those who gaining fame and fortune
Die, and are soon forgotten;
Others inspire, and live
In the achievements of future generations.

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TREATMENT AND MANAGEMENT OF NASAL SINUS DISEASE*

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NASAL SINUS DISEASE is probably the most frequent condition we encounter in our practice today and one of the most difficult to treat from a standpoint of cure. It might well be termed a universal infection, for very few, if any, reach adult life who have not had an infection in one or more of the nasal sinuses.

The laity are sinus and allergy conscious; it is the fad to have one or both. Sinus trouble has served as a cloak for the physician and patient alike to explain away obscure headaches, eye complaints, and all forms of general disorders. How often do you have patients come into your office and say, "Doctor, I have sinus," or, "Doctor, I have allergy?" They have been listening to the radio and reading "drug store" advertising and discussing them over the bridge table. They know all the symptoms and all the remedies, many of which have been purchased and tried by them. They may or may not have nasal sinus disease. It is the duty of the rhinologist to make a correct diagnosis and treat accordingly; and, remember, it is just as important to treat the patient as it is the disease. To do this successfully we must get the patient's confidence and there isn't anything that will aid as much in diagnosis or inspire the confidence of your patient as quickly as a thorough and carefully taken history; when trouble was first noticed by patient, whether they have repeated attacks, how frequently they have colds; as sinusitis most frequently is secondary to acute rhinitis. On the other hand a chronic sinusitis produces frequent acute exacerbations, or "colds" as termed by the patient. Ascertain the character and amount of nasal discharge, whether watery or purulent, whether there has been undue exposure to cold or damp weather, whether there is anyone else in the family or a close associate suffering with the same trouble, whether they have a postnasal drip, as this is the most frequent sign or complaint of nasal sinusitis, and pain, character and loca-

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tion, but remembering that pain is not always an outstanding symptom.

In a recent report from one of our large clinics,[1] of three hundred consecutive cases of nasal sinus diseases, pain was an outstanding symptom in only thirty cases; twenty-five were acute, and five chronic, while the predominating symptom was postnasal drip in over 80 per cent of these cases.

I believe the rôle of the sinus as a focus of infection has been overdone. Remember, a focus of infection can exist elsewhere in the body in the presence of an actual infection in the sinus, and we should not be content to stop our search when this is found but should look carefully for foci elsewhere. Undoubtedly many patients with normal or practically normal sinuses have been treated as sinus cases, even with surgery, with very little, if any beneficial results; thus our treatment falls into disrepute.

We rhinologists are partly to blame for the guillibility of the public toward the radio and drug store advertising and their belief that "once a sinus always a sinus" and "an operation on a sinus only means a succession of operations." If we are to correct these fallacies, we must give our patients more time and study, and intelligent treatment. We must correctly evaluate all our findings and place them in the proper category in relation to the symptoms. This is where we rhinologists often fail. We forget the patient; the individual temperament and makeup; their problems, and the adjustments they are trying to make. Many of our patients today would not consult us if they had made satisgactory adjustments to their problems and were contented and happy.

TREATMENT

After the diagnosis of sinusitis has been made, map out your line of treatment according to the conditions found in the individual case. This depends on whether it is acute or chronic purulent sinusitis or an allergic condition, or a combination of the two.

In the purulent cases, I prefer to irrigate the sinuses with a warm, balanced normal saline as Ringer-Locke solution, through the natural ostia, if possible, and with Bower's natural ostium cannulae. I have been able to irrigate the maxillaries through the middle meatus in more than 95 per cent of my cases, and the majority through the natural ostium; the sphenoid and frontals in 60 per cent to 70 per cent of cases. The maxillaries and ethmoids are much more frequently invaded than the frontals and sphenoids.

The busy rhinologist doesn't take the time to culture every infected sinus to determine the exact type of bacteria he is dealing with, but by experience and observation he can learn a great deal by studying the return irrigate.

STAPHYLOCOCCUS AUREUS

In the acute condition you will probably more often encounter the staphylococcus aureus or albus. In these cases you will observe several lumps of pus with the characteristic yellow or white color. If the irrigate is cloudy and well mixed, the whole lining of the sinus is likely involved. If after a few irrigations the pus comes out all in one lump mixed with mucus, the sinus is clearing up and the infection is becoming localized to one portion only. These cases usually clear up in two to three weeks.

Streptococcus and influenza infections give much the same irrigate; pus is rather scanty in the beginning, granular and more or less sanguineous, which is characteristic of this type of infection. These cases should be handled judiciously. They usually run a temperature 101 to 103 degrees, higher than the ordinary type of sinus infection. After the diagnosis has been established, better stop irrigations temporarily, especially if there be any local or general reaction following the initial irrigation. Put patient to bed, give fluids and sedatives (such as empirin compound with or without codeine, and a laxative if necessary. Some of the streptococcus infections improve rapidly when sulfanilamide is administered. Keep the nostrils free and open to facilitate drainage until nature has had a chance to throw out her protective secretion and the more acute symp-

toms have subsided; then begin with your irrigations again. If these cases are not followed up they are most likely to become chronic.

In bacillus pyocyaneus infection the first irrigate is very murky and purulent looking with a greenish cast, but the pus soon begins to lump, and convalescence is rapid.

In bacillus proteus infection, the first irrigate is very foul broken down pus, but not very pathologic. These cases usually clear up rapidly with irrigations.

IRRIGATION

In many cases we have a mixed type of infection with some particular strain predominating, but if you observe the irrigate you will note the progress of convalescence and gauge your irrigation accordingly. As the sinus heals the irrigate will come out in one lump, with less and less pus and more mucus. Some patients and some types of infection do better if irrigation is performed daily; others do better irrigated every two or three days, lengthening the time between irrigations as the patient improves, always remembering that too frequent or too prolonged irrigations may defeat the purpose for which they are intended. I like to have two negative irrigations before the patient is discharged. We use irrigation as a diagnostic method frequently in conjunction with transillumination and x-ray.

Heat locally is usually more soothing to the patient than cold applications. After irrigation we like to pack the nostrils gently with cotton tampons saturated with 10 per cent argyrol or neosilvol as per the Dowling method, with or without a few drops of three per cent ephedrine added, depending on the degree of turgescence present. Then let the patient sit for twenty minutes under the infrared lamp. Remove the tampons and irrigate the nostrils with warm Ringer-Locke solution. Many times you will be surprised to see as much pus in this as the original sinus irrigate. Sometimes fracturing over a middle turbinate will facilitate drainage. Acute cases should be handled without surgery if possible.

Chronic cases should be studied carefully as to type of infection, association with allergy, the presence or absence of polyps, and whether or not surgery is needed. If so, do surgery first and adequately for drainage. Any operation which does not thoroughly drain the sinuses is better left undone, but if surgery is needed, local and medical treatment only gives the patient temporary relief. Correct obstructing deformities, remove polyps and degenerated tissue, but be careful to preserve all mucous membrane possible. I feel that in the past we have unnecessarily sacrificed too much mucous membrane. Where at all possible, dissect up a flap and push it out of your way and after the obstruction or diseased portion is removed, replace the membrane. A large boggy turbinate can be split or the membrane dissected up and the central portion removed; or turbinate may be crushed, thus giving space for aeration and drainage. Conditions are so varied that the operator must choose the type of operation best suited to each individual case to give adequate drainage and aeration and restore the nostril to as near normal condition as possible. In nasal surgery, conserve and restore the normal architecture of the nose. The middle turbinates should be preserved in part or in full whenever possible, and the inferior turbinates seldom if ever removed. Excessive cautery of the turbinates should be avoided. If the physiology of the nose is kept in mind, nasal surgery designed to restore the normal architecture and function of the nose will give uniformly good results.

CHRONIC CASES

In chronic cases, the discharge or irrigate is usually milky, foul and broken down, but occasionally you will find a patient with a stuffy nose in whom you suspect allergy and you will notice the irrigate is a rather clear mucoid substance which in about 50 per cent of the cases is laden with streptococcus viridans.

I prefer to treat most of the chronic cases conservatively, at first not attempting to do any surgery on the sinus, *per se* until I have

irrigated it for four to eight weeks, supplemented by nasal tampons and local applications to facilitate drainage with supportive treatment directed toward the general health of the patient. Then if sufficient improvement has not taken place you may enlarge the openings in frontals or sphenoids if suppuration is still present. Suppurative ethmoid cells that have not responded to conservative measures should be thoroughly exenterated. In the maxillaries do a window opening under the inferior turbinate and remove as much debris and polyps, if present, as possible; then discontinue the sinus irrigation and use a curved metal suction cannula to keep the sinus clear, continuing with the nasal tampons and local treatment. It requires a very fine sense of surgical and medical judgment in many cases to accomplish the desired results.

POLYPOID TISSUE

Where very much polypoid tissue is present surgery must be done, but for the past year, I have made it a rule not to operate on these cases until they have consulted an allergist, if it were at all possible, to determine the allergens causing the local manifestations, for I feel very definitely that practically all of these cases are allergic and in most cases primary, and the infection secondary. It is in these cases, especially in young people, that the return of polypoid tissue following repeated removal, has caused the rhinologist so much grief, and led the patient to believe that one operation invites more operations. If the allergists can aid us in correcting this condition it is our duty to our patients to make use of this help.

In considering local treatment we must again remember the function of the nose and nature's own protective agents; namely, the ciliated epithelium of the nasal mucous membrane and the mucous covering of this membrane. This mucoid substance envelops the bacteria present and the wave-like motion of the cilia hasten them on to the nasopharynx and throat from where they may be expectorated. How effective the cilia are is demonstrated by the fact that after a good-sized window has been made in the antrum, then injected with a solution, the most of it is worked back out through the natural ostium. A great many drugs prescribed to relieve the patient, hinder or stop altogether the action of these two natural protective agents.

Many investigators have demonstrated that tap and distilled water when applied to the nasal mucous membrane slow the ciliary beat. One-one thousandth epinephrine, two per cent zinc sulphate, two per cent mercurochrome and oily solutions are definitely deterimental to ciliary activity. Eucalyptus and thymol are more detrimental than menthol. Normal saline or Ringer-Locke solution, ephedrine up to three per cent and cocaine up to two and one-half per cent in normal saline do not slow ciliary activity and the silver proteins up to 20 per cent have only a moderately slow effect.

SELECTION OF DRUGS

It is only logical to select for a given purpose the drug or drugs which will upset the normal function as little as possible, yet give the desired results, and in the light of these experiments it seems that ephedrine one-half to three per cent is the drug of choice in local applications for shrinkage and drainage. If anesthesia is desired, cocaine one-half to one per cent in normal saline and if antiseptics are used, the silver proteins five to twenty per cent combined with one-half to one per cent ephedrine, always using the weakest solution of any drug that gives the desired result and in normal saline, if not incompatible.

The mode of application is important. If only shrinkage of the mucosa of the nostrils is desired, use a spray. If you wish the fluid to enter the sinuses, have patient lie on the side, pillow under the shoulder, head lowered and turned slightly backward, instill eight to ten drops in dependent nostril, and keep the patient in position five to ten minutes. Mild alternate suction per the Proetz method will facilitate the entrance of the medication into the sinuses.

Fenton and Larsell[2] in their studies of experimental sinusitis in cats and humans have

reported that röentgen ray treatment seemed helpful in chronic sinusitis where the membrane contained many lymphocytes; promoting histiocyte mobilization and fibrous healing with intact ciliated epithelium. In membranes already fibrous or containing cysts or abscesses, this therapy is infective.

Calcium therapy reduces edematous membranes, favors phagocytosis, and increases the accumulation of plasma cells and fibrosis. The authors believe that the histiocytic system takes up the early defensive measure especially in acute sinusitis and acute exacerbations of chronic sinusitis, and the plasma cells are found in the later stages.

SINUSITIS IN CHILDREN

Most cases of acute sinusitis in children can be handled successfully by local treatment and sedatives. This is also true of the chronic cases in a large degree after the tonsils and adenoids have been thoroughly removed, to aid in aeration and drainage, but do not hesitate if the occasion demands it to do an intranasal antrotomy, reduce ridges and spurs, collapse cystic degenerated turbinates and if possible fracture over a deviated nasal septum. Many rhinologists hesitate to do nasal surgery in children for fear of deformity as the child reaches maturity, but we must remember that disease, if allowed to go unmolested, can and does produce some horrible looking deformities. The natural ostium of the maxillaries in children is proportionately larger than in adults, hence more likely to become infected, but this also makes it more amenable to local treatment by shrinking the congested nasal tissues.

While the diagnosis and treatment of allergy is only in its infancy, when we realize that over 70 per cent of the population are allergic to one substance or many, and a vast majority of these patients manifest nose and throat symptoms, we begin to realize what a problem our task is.

The seasonal or pollen allergens are diagnosed and treated fairly satisfactorily, by avoiding the exciting allergen or by desensitization, but the perennial cases or vasomotor rhinitis give us much concern both as to diagnosis and treatment. I believe these cases should be handled jointly with a competent allergist if possible, but many of our patients are too poor to pay the rhinologist a decent fee, much less able to go through an expensive allergic clinic.

We can diagnose many of these cases by examining the nasal secretion microscopically to determine if eosinophils are present, as they usually are in vasomotor rhinitis, and by asking a few leading questions as to diet, the principle articles of diet, whether any unusual food has been eaten preceding the attacks. If so, eliminate these and see the result. Another method is to put your patient on an orange juice diet with probably a little dry toast. If the allergic symptoms subside, gradually add one article of food at a time to the diet until the symptom reappear. Ask about occupation, what kind and amount of dust is present, and whether the symptoms are worse while at work or when at home in the bedroom. A careful history and a cooperative patient will be successful in a surprisingly large number of cases.

CLASSES OF VASOMOTOR RHINITIS

For convenience, we divide our cases of vasomotor rhinitis into two general classes. The contact allergens; those that are inhaled as dust, either house or factory dust or substances coming in contact with the body, producing local symptoms, and the ingestive or food type and we also feel that there are a class of patients which have an endocrine imbalance which plays a part in their sensitivity. Many of these patients can be kept symptom free by the administration of theelin in oil or thyroid extract or other products of the endocrine system. Then, we believe, there is the metabolic case which is relieved by the administration of dilute hydrochloric acid by mouth or intravenously and by administering free iodine hypodermically, (I use homiodin).

For the control of this disorder, various caustic meaures such as cauterization with electric cautery, trichloracetic acid, surgical meas-

ures and zinc ionization, have been advised and all have been more or less successful in relieving the symptoms in certain cases. The duration of symptomatic relief is in direct proportion to the severity of insult to the tissues. Searching for something that would bring about maximum relief with minimum damages, Alfred Lewey[3] and his co-workers have been using a resorcinol paste applied over the entire nasal mucosa including the middle meatus, first applying three per cent cocaine. His successes have been greater and the reaction less than any other treatment with which he is familiar. Relief lasts from a few weeks to several months. Some patients treated two years ago have had no recurrence.

Just a word about general treatment. Vaccines have not proven as efficient in treating nasal sinus disease as we had hoped, but we feel that they are an aid in a great many cases, whether their efficacy is due to their foreign protein reaction, their specificity or the psychological effect, or whether all of these play a part I do not know. Some rhinologists feel that they get equally good results with non-specific foreign protein.

I use stock vaccine in the acute cases and autogenous vaccine in chronic sinusitis.

Supportive treatment directed toward building up the patient must not be neglected; it not only shortens convalescence but adds much to the mental attitude of most patients.

Diet should be carefully considered where there is a deficiency in vitamins, which is frequently the case. They should be added to the diet. Proper rest should be insisted upon. Patients must get an ample amount of good air and sunshine. Warm moist air in the bed room is preferred to cold, dry, irritating air. Get the confidence of your patients and they will be happier, more cooperative and your task will be more fascinating and easier.

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METRAZOL CONVULSIONS

Temporary spinal anesthesia as a means of preventing the vertebral fractures which often accompany metrazol convulsion treatment for mental disorders is recommended in a report in *The Journal of the American Medical Association* for June 3.

The authors, W. R. Hamsa, M.D., and A. E. Bennett, M.D., Omaha, point out that a transient anesthesia, which wears off in about an hour after the convulsion, prevents contraction of the anesthetized areas and the consequent fractures. "With the spinal muscles relaxed," they state, "one then has only to pay careful attention to the upper extremities, and at the onset of the spasm both arms are held against the wall of the chest."

Drs. Hamsa and Bennett assert, "We are still inclined to disagree with those who recommend this type of treatment for home, office or general hospital management. Only in a well equipped psychiatric department under most careful supervision can it be administered successfully and some of the serious complications be prevented."

Basil T. Bennett, Jr., M.D., and Charles P. Fitzpatrick, M.D., Providence, R. I., recommend that metrazol convulsion treatment be dispensed with until some method is devised which will prevent fractures. They have under consideration a frame to which a patient can be strapped during the convulsion which might protect him from fracture. Their proposal recalls the method outlined in *The Journal* for April 29 by Phillip Polatin, M.D., New York, and his associates, who recommend placing the patient on his side, acutely flexed.

Summarizing the merits and hazards of the metrazol convulsion treatment, *The Journal* says:

"Obviously convulsive treatment represents a difficult technique. It is susceptible to serious complications and is therefore one that should never be undertaken except under the best of controlled conditions. The report by Basil T. Bennett and Fitzpatrick indicates that eight out of seventeen patients treated by this technique complained of backache and that each of these patients showed x-ray evidence of compressed fractures affecting the spine. In this connection, the technique for preventing this complication described by Hamsa and A. E. Bennett merits attention. Apparently spinal anesthesia induced prior to shock treatment may be able to prevent severe fractures of the spine and lower extremities."

DIPHTHERIA IMMUNIZATION PROCEDURES

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In private practice the prevention of diphtheria by active immunization is a procedure squarely up to the physician. The means are available and one might almost say that the medical profession as a whole can be judged of its attitude toward preventive medicine by the use it makes of active immunization. Real progress in the prevention of diphtheria had its beginning in the discovery of the toxin test by Schick and the working out of a practical toxin-antitoxin mixture by Park and his associates subsequent to the introduction of the Schick test. The Schick test depends upon the fact that if an individual has not less than 1/30 of a unit of antitoxin in each cubic centimeter of his blood he possesses a natural immunity. Schick found that if 1/50 of the dose of diphtheria toxin necessary to kill a 250 gm. guinea pig was injected into the skin it would be neutralized if the individual had a natural immunity, but if there was no natural immunity the toxin acted as an irritant and produced a local reaction.

By means of the Schick test it has been found that there is a marked variation in the susceptibility to diphtheria at different age periods. Under three months but from 10 to 20 per cent are susceptible, at six months 30 per cent, and then a rapid increase takes place to 60 per cent or more at the end of the first year. Between one and two years of age the susceptibility reaches the highest point of around 75 to 80 per cent. A gradual decrease takes place from this age on, until at age 10 years only about 30 per cent of the children are susceptible.

Percentage figures for susceptibility to diphtheria in the various age groups must of necessity vary widely and accordingly the environment of the child must be considered. Among babies and children in congested centers, where the population live in close contact, the percentage of immunity is much higher than among individuals living in rural districts.

The Schick reaction is not as simple a procedure as it sounds and not infrequently the findings are invalidated by poor technique. Extreme care must be exercised in its application. The toxin mixtures used are very unstable and many negative Schick tests have been reported in susceptible individuals. It is desirable to obtain immunity against diphtheria at as early an age as possible. In talking with physicians doing a great deal of immunizing as well as following the reports on this subject in the literature, there continues to be considerable disagreement as to the ideal age, if there be such, that the baby should receive active immunization against diphtheria.

In private practice, for the most part, I believe that pediatricians are recommending that active immunization against diphtheria be carried out at the end of the first year of life. Personally, I believe this to be a sound procedure.

Recently our public health programs call for the advancement of this age to six months. There are two very important factors which we must consider in advising active immunization at this age: (1) the fact that individuals of this age are poor formers of antitoxin, and (2) the fact that a considerable proportion of young individuals still retain their passive immunity at this age. In a small series of Schick tests made at age six months more than 60 per cent were still negative, while in another

series made at ages nine to twelve months of age more than 70 per cent were found to be positive Schick reactors. This is in agreement with most statistics gathered from the literature on this subject. I believe if active immunization against diphtheria is to be carried out at age six months, preliminary Schick tests should be done and only the positive reactors immunized, the negative reactors to receive the second Schick test two to three months later and receive immunization when reacting positively. If this cannot be done, then obviously such immunization should be delayed until most all the babies have lost their passive immunity.

SCHICK TEST

As a public health measure the routine use of the Schick test is not, at the present time, a practical procedure because of the additional work required and also because of the lack of cooperation on the part of the parents. If one studies the morbidity and mortality statistics it will be found that from 65 to 70 per cent of the deaths from diphtheria are in children below the school age. So that while we all agree our compulsory immunization law, as regards both diphtheria and smallpox, requiring that each child present a certificate showing successful innoculation against diphtheria and smallpox when entering school for the first time, it does not serve to lower the present high morbidity and mortality rate which exists in the age group from one to five years. This should serve to impress every physician of his personal responsibility in the carrying to completion of these preventive procedures by the end of the first year of life.

As to what type of immunizing material we may prefer to use as well as the age we immunize the babies in our practice, I wish to quote from the Committee on Immunization Procedures of the American Academy of Pediatrics: "Three types of material are used for active immunization against diphtheria—(1) toxin-antitoxin—for individuals over ten years of age, injected subcutaneously in doses of 0.5 cc., one cc. and one cc. at weekly intervals; (2) diphtheria toxoid or (3) alum precipitated toxoid for children under 10 years of age. Each toxoid material should be injected in doses of 0.5 cc., one cc. and one cc. at weekly or longer intervals. Variations of these doses have been used if reactions follow the initial injection. All of these materials will immunize, although it may take as long as a year for a Schick test to become negative after the use of toxin-antitoxin as compared to a month following injections of toxoid. One dose of alum precipitated toxoid does not immunize an individual as was originally thought.

"Always do a Schick test within six months after immunization to determine whether immunity is present. Do not immunize before nine months of age." Since this committee is composed of some of our leading research workers in the field of immunization procedures I feel that all of us will be doing the best by our patients in adopting for routine use what they have recommended.

VACCINATION

Vaccination against smallpox is thought of as our first as well as the greatest preventive procedure, but it is safe to say that we are not yet applying it in the most simple and efficient manner. Our present plan of vaccinating children, just before their entrance into school for the first time has the following disadvantages: (1) it allows the younger age group of children to remain unprotected; (2) it is applying a slightly painful procedure at an age when mental apprehensions may have become well developed; (3) it exposes them unnecessarily to the remote danger of vaccinal encephalitis; (4) it adds to the possibility of infection because of the many bumps the school child receives.

Vaccination is to be recommended at the age of one year because it eliminates all of the disadvantages listed above and produces less constitutional reaction than occurs at the older age.

The cure of tuberculosis depends more on what the patient has in his head than on what he has in his chest.—Sir William Osler.

THE PROBLEM OF TUBERCULOSIS IN WEST VIRGINIA*

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TIME is too short and too many factors are involved to give a satisfactory discussion of the problem of tuberculosis in West Virginia. However, this paper shall attempt to consider epidemiology in tuberculosis, to give results of present treatment and to outline reasonable methods to eradicate the disease.

Thirty-five years ago our population was largely rural. The families were large and hygiene was at a low ebb. So, a tuberculous individual was in position to give overwhelming infection to his immediate family, but sparse population and limited travel reduced the number of contacts he could make. Today, improvements in hygiene and smaller families have resulted in fewer people having massive doses of bacilli, but increased density of population and better modes of travel have multiplied the number of possible contacts. With these changes, tuberculosis has become a chronic rather than a subacute disease, thereby increasing considerably the interval between incipient and disabling lesions. During this same period, tuberculosis has not had a proportionate increase numerically. Therefore, a reduction in mortality rate from 200 to 52 per 100,000 has little significance in regard to control. Moreover, in addition to knowing that the majority are not reported until completely disabled or dead, we know disability comes late to the chronic as compared to the acute. Consequently, neither death rate nor reported cases are indicative of the number of active cases.

As this is in direct contrast to the usual arguments which claim the number of afflicted to be fewer, it becomes necessary to remind you that earlier statistics were based on sur-

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*Read before the Raleigh County Medical Society at Beckley on February 16, 1939.

TABLE NO. 1

ACTIVE — 6.4 PER 1,000

Population			Infected		Active			% by Age
Age	%	No.	%	No.	%	No.	Cor. No.	Groups
0 - 9.....	21	388,500	10	38,850				
10 - 19.....	18	333,000	20	66,600		708	1,080	9%
20 - 29.....	16	296,000	30	88,800				
30 - 39.....	15	277,500	40	111,000		5,582	8,520	71%
40 - 49.....	14	259,000	50	129,500				
50 - 59.....	9	166,500	60	99,900				
60 - 69.....	5	92,500	70	64,750				
70 Up.....	2	37,000	80	29,600		1,572	2,400	20%
38 Yrs.....	100	1,850,000	34	629,000	1.25	7,862	12,000	100%

veys of the sick and their immediate families. Later reports are more representative of the entire population.

This table illustrates the age incidence, the number infected and the probable number with clinical lesions. These figures were determined from extensive surveys in rural communities and represent an average of their results. As this work concerns less densely populated areas where preventive work is far ahead of ours, there should be no hesitation in raising by 50 per cent the number of active cases one would expect to find in West Virginia.

Although it is not within our power to predetermine which of the infected will develop active lesions, we do know that the majority of adult cases received their first exposure in childhood; that a child with positive tuberculin has only one-tenth the chance of evading illness in adult life as the negative reactor, and that repeated, as well as prolonged exposures are very important in the development of disabling lesions.

RESULTS OF PINECREST STUDY

If the 12,000 active cases may be put in age groups found in a study of 1,000 cases at Pinecrest Sanitarium, we are faced with the following problem: (1) One thousand children with active tuberculosis in our schools are closely associated with 250,000 children who would otherwise avoid the dangers of infection and thereby endanger their future health; (2) eight thousand in the productive age soon will be removed from active life, but in the meantime, are giving overwhelming infection to their children, husbands, wives and occupational associates; (3) two thousand four hundred are in the more advanced years when the disease is less prostrating and has little effect on longevity, but they are the unsuspected persons with so-called bronchitis, catarrh, or asthma who are very careless and are malignant to their associates.

It is estimated that eighty-seven and one-half per cent of these 12,000 belong to the group whose family income is less than $800 yearly. Honorable and self-respecting however much they may be, it is not within their pecuniary power to afford proper medical attention. As a result, all symptoms of incipient tuberculosis are ignored. Usually, they do not present themselves for diagnosis until they are disabled; or, if seeking help earlier, they cannot pay for a diagnostic x-ray. They are the people whose overcrowded homes, poor hygiene, and malnutrition furnish potent media for flourishing growth of tuberculosis. It is with them that the disease becomes rather acute in form and produces high mortality rates. (The negro population has worse conditions and with them we find the scourge more rampant.) In other words, the closer the contact and more overwhelming the dose, the more destructive is tuberculosis.

ECONOMIC CONDITIONS

Economic conditions have had a decided effect in recent years. The depression and then the recession have been followed by no further reduction in death rates in the past five years. A continuance of such conditions very likely would return tuberculosis among the poor to the acute type. Attempts at slum clearance among such people have been failures because wage scales could not be elevated to meet the rent demands. Nor have they been educated to desire them. For the same reasons improvements in the tuberculosis problem will not come from attempts at improvement of home conditions. However, the eradication of any disease has been secured by eradication of the source, not from treating the ill. Therefore, we have with us these people who handle our food and our clothes and who associate with us, unable to pay either for their diagnosis and treatment or for improvement of their home conditions. They and their offspring will ever endanger every life in their community.

Though removed from first to seventh place as cause of death, these are the reasons tuberculosis still leads in disability and mortality between the years of 20 and 40, and probably as a disease entity of one organ still leads the entire parade. These are the reasons why tuberculosis becomes a public health

problem, to be met by everyone rather than left with the ill.

TREATMENT

Case finding in West Virginia remains largely a question of the patient presenting himself for examination after becoming completely disabled. Any agencies we have for this work do a very incomplete job. Tuberculin tests among school children are not followed by family investigation to determine the source of their contacts. Clinics for

TABLE NO. 2—RESULTS BY STAGES (1000 CASES)

Classification on Admission	Far Advanced		Moderately Advanced		Minimal		Total	
Discharge Classification	No.	%	No.	%	No.	%	No.	%
Dead	130	25.5	10	3.6	3	1.4	143	14.3
Unimproved—Active	149	29.2	46	16.4	35	16.7	230	23.0
Improved—Active	175	34.3	136	48.6	105	50.0	416	41.6
Quiescent—Inactive	31	6.1	46	16.4	35	16.7	112	11.2
Appar. Arrested—Inactive	18	3.5	42	15.0	32	15.2	92	9.2
Arrested—Inactive	7	1.4	0	0.0	0	0.0	7	0.7
Total	510	100.	280	100.	210	100.	1000	100.

TABLE NO. 3—RESULTS BY AGE (1000 CASES)

	Far Advanced			Moderately Advanced			Minimal		
Age	10	20	40	10	20	40	10	20	40
	20	40	Up	20	40	Up	20	40	Up
Dead	12	90	28	2	5	3	0	3	0
Unimproved	12	110	27	5	35	6	3	30	2
Improved	10	123	42	15	95	26	7	81	17
Quiescent	2	18	11	6	25	15	7	24	4
Appar. Arrested	3	13	2	6	27	9	2	26	4
Arrested	1	4	2	0	0	0	0	0	0
Total	40	358	112	34	187	59	19	164	27

TABLE NO. 4—STAY IN MONTHS

	Far Advanced		Moderately Advanced		Minimal	
	No.	Average Stay in Mo.	No.	Average Stay in Mo.	No.	Average Stay in Mo.
Dead	130	9.6	10	21.0	3	11.0
Unimproved	149	5.0	46	4.0	35	2.0
Improved	175	11.4	136	7.0	105	3.0
Quiescent	31	24.0	46	10.0	35	5.0
Appar. Arrested	18	35.0	42	18.0	32	7.0
Arrested	7	36.0	0	—	0	—
Total	510	11.07	280	9.15	210	3.9

examination of contacts are dependent on the stethoscope. Were this adequate, it still fails for fully 60 per cent of our patients can give no history of contact. Moreover, not more than one in ten of our patients receive investigation of their families. This latter, in spite of the fact that in every family of theirs we have examined, we have found one or more active cases.

The above tables were prepared from an analysis of 1,000 cases with positive diagnoses, treated at Pinecrest Sanitarium since 1930. A review of them indicates a very low percentage of good results but it may amaze you to know that, stage for stage, our results compare very favorably with those of other institutions.

Briefly stated, the purpose of sanitarium treatment is fourfold: (1) to rehabilitate; (2) to educate; (3) to heal, and (4) to isolate.

REHABILITATION

As the majority of these people come from the low wage bracket, their existence depends on hard manual labor. No individual with tuberculosis is a good risk if he must return to such vigorous means of livelihood. It is imperative, therefore, for arrested cases to receive training in trades which are less demanding of body strength and energy. Yet, West Virginia offers nothing in this line. It could be handled by the vocational section of the Department of Education.

An invaluable protection to all associates of the tuberculous is their education in precautions. Our efforts to a large extent are rendered fruitless. Eighty per cent of our patients have had ample opportunity to sow their seed before coming to us. Sixty-four per cent leave us with active trouble. The false stigma attached to tuberculosis, indifference, and a false sense of security result in their failure to continue observation of careful living and proper precautions. A guarded life becomes irksome and economic factors force them to return to work before they are ready.

It is impossible to secure healing for any patient when we have no measures to force him to remain in the institution. Only 22 per cent were with us sufficiently long to obtain definite benefit. Fourteen per cent died, and consequently, had no hopes of improvement. Of the remaining 64 per cent, the majority had progressed beyond redemption. At least 500 refused to remain long enough to secure an arrest of their disease. The ultimate prognosis for these people varies in proportion to extent of the lesion. Regardless of condition on discharge, within ten years 90 per cent of the far-advanced, 50 per cent of the moderately advanced, and only 10 per cent of the minimal cases are dead. Their rehabilitation and ability to earn a livelihood varies in the same ratio.

In the same proportion that healing is a failure, so do our attempts at isolation come to naught. It gains us little to treat one and leave ten untreated. It affords no protection to a community to isolate these people after their disability has taken them from circulation. Nor is it of any protective value to a community if they may return home strong enough to mingle with others but still sick enough to have tubercle bacilli in the sputum. An isolation so late begun and so soon ended cannot be isolation. Isolation of the tuberculous must become the counterpart of immunity and improved sanitation, which have eradicated other diseases. It must be total to be effective.

PROGRAM OF CONTROL

Advent of wide use of the x-ray amply demonstrated the many mistakes made in diagnosis. The physician depending on a stethoscope for finding tuberculosis was missing most of the minimal cases. Of the more advanced cases, he missed fifty per cent of the cavities and underestimated by far the extent of all lesions. Naturally, such an improvement was hailed as the means of early diagnosis. Finances were not considered and no proper program has been adopted to determine who should be x-rayed. So, our cases

remain undiagnosed until disabled. (Our present population at Pinecrest is 85 per cent far advanced, 11 per cent moderately advanced, and four per cent minimals. Some institutions have been able to reduce the proportion of far advanced to 40-50 per cent.) Hoping to eliminate the necessity of long residence caused by advanced lesions, many have profited by use of the x-ray in selection of cases and are giving collapse therapy to a high percentage of their patients. The rabid fans of this form of treatment have gone beyond reasonable limits, are compressing many lungs unnecessarily, and have completely forgotten that bed rest remains the basis of all curing. As a result, phrenicotomy, pneumothorax, and thoracoplasty have improved the prognosis of all by only two per cent. They have reduced their final benefits to the individual patient and lost the protection of isolation at the expense of a more rapid turnover in patients.

It is obvious that we need to enforce longer residence in our institutions. Yet 1,100 beds have a replacement value of almost $4,000,000 and the yearly total upkeep is $750,000. To care for the sick we need about two beds for every death which means double our present capacity. In order that the cost may not be prohibitive, low cost buildings should be erected for the isolation of the hopelessly advanced.

Veterinarians demonstrated the value of the tuberculin test in case finding. By destroying the infected cattle they have reduced tuberculosis in American dairies from more than 50 per cent to less than one per cent. We could use the test to determine those needing x-rays and by the latter could select the cases needing treatment.

An adequate program for early diagnosis, sufficient treatment and suitable after care will locate the patients before they have begun to infect others, will remove the carriers from circulation, and will prevent subsequent recurrence. It will decrease the number of permanently disabled, will modify the cost of treatment for the individual case, and will speed up the turnover of patients. No patient would need to experience a long wait to gain admission. Thus, we could remove the source so that succeeding generations would be free of infection.

To make the program effective requires complete cooperation among all agencies and the home physician. The latter sees 70 per cent of the victims first and has as many return for after care. The agencies must help in case finding and follow-up. The home physician must know the essentials of diagnosis and treatment. When the public is educated to the causes and results they not only will cooperate but also will demand that we do our part.

Since any hopes for eradication of tuberculosis are dependent on early diagnosis, suitable treatment and after care of those amenable to therapy, and isolation of the hopelessly advanced, the following outline is presented as a basis for a working program.

COOPERATIVE PROGRAM

I. Case Finding:
   A. Tuberculin test—
      (1) Contacts of known cases,
      (2) School children,
      (3) Relatives of positive reactors,
      (4) Public, household and industrial employees.
   B. X-ray positive reactors.

II. Treatment:
   A. Home treatment—
      (1) Training and education while waiting to gain admission to sanatorium,
      (2) After care.
   B. Present sanatoria—
      (1) Collapse therapy, for those amenable to treatment,
      (2) Bed rest, for those amenable to treatment.
   C. Local, low-cost buildings—
      (1) Isolation of hopelessly advanced,

(2) Isolation of others until they can gain admission elsewhere,
(3) Diagnostic clinics.

III. Follow-up:
A. Check-up of infected.
B. Recheck negative reactors.
C. Recheck discharged cases.

IV. Quarantine:
A. For any active case.
B. To enforce adequate treatment.

V. Education of people, clubs, schools, etc.

VI. Rehabilitation:
A. Vocational schools.

ACUTE AND REMOTE EFFECTS OF INJURIES TO THE KNEE JOINT*

By ROBERT V. FUNSTEN, M. D.
Charlottesville, Virginia

If you had a hinge on your barn door that kept itself in repair and oiled itself and lasted for sixty to eighty years, you would think you had a fine piece of machinery. A knee joint does all these things and more. It can stand the pounding and strain of many hundreds of pounds, thousands of times daily. It is estimated that the average person makes approximately twenty thousand steps during a day. This means twenty thousand times the individual's weight in pounds of stress and strain on their knee joints.

Hence a knee joint, when injured, presents a problem which is not duplicated in any other joint in the body.

From a structural standpoint, it is a marvel of mechanical efficiency, being designed to carry the body weight in either the flexed or extended position, and to brace itself by either the strong lateral ligaments when extended, or by a compact muscular and tendonous synchronism when flexed. The condyles of the femur are so designed as to enhance this self-adjusting stability.

In addition to the lateral ligaments, there are two internal ligaments, the crucials, one of which becomes taut in extension, the other in flexion.

The synovial membrane covers the surface of the joint, but not the condyles of the tibia and femur. It acts as the lubricating mechanism, and does a good job when not irritated to excessive performance of its duty.

THE AUTHOR

Dr. Funsten, orthopedic surgery, graduated University of Virginia and spent four years in orthopedic department, University of Iowa. Professor of Orthopedics, University of Virginia, and Chairman of the Section on Orthopedics of the American Medical Association.

It has been shown experimentally that the synovial fluid is manufactured and absorbed through the lymphatics. For this reason a scarring or inflammation of the superficial tissues above the knee may lead to hydrops even when the knee joint itself is entirely free from trouble.

Injuries to a knee joint may be of almost any severity and from a multitude of causes. The injury may be from one single severe trauma or from many repeated mild ones. A bow-legged person may develop a severe traumatic arthritis from the repeated minor strains of weight-bearing in faulty position. Let us confine ourselves at this time to the most common and more severe types of injury.

In reviewing the histories of several hundred cases of knee injury seen in the past six years, I find that the order of prevalence is as follows:

1. Injuries to the semilunar cartilages.
2. Injuries to the lateral ligaments.

*Read before the meeting of The Association of Surgeons of the Chesapeake and Ohio Railway, White Sulphur Springs, West Virginia, November 12, 1938.

3. Post-traumatic synovitis and arthritis.

4. A series of conditions such as fractures of the tibial spines, dislocation of the patella, rupture of the crucial ligament, osteochondritis dissecans, fractures into the joint including patella fractures, stab wounds and contusions.

DIAGNOSIS

It is not always easy, even when the injured person is seen immediately, to determine the type and extent of the injury. Frequently x-rays are of little or no value in the diagnosis. An accurate history of the exact way in which the injury occurred is one of the most important leads. A thorough knowledge of the normal mobility and stability of the joint in various positions and of the surface and inside anatomy will tend to give one "x-ray fingers" which will be of great help in reaching our conclusions. A diagnosis of ruptured semilunar cartilage should be made very guardedly unless there is a definite history of lockage with inability to extend the knee completely, even though the inability exists for a short period of time. The other constant sign is localized tenderness over the cartilage, which often can be felt protruding. Very occasionally, and only when the cartilage has been torn loose from its posterior attachment, will the lockage sign be absent. However, there are other injuries which will prevent extension, such as tears in the lateral ligament. Here the ligaments are put on tension when the leg is straightened, and it hurts to stretch them. A contusion of the prepatellar fat pads will also block complete extension.

A displaced semilunar cartilage occurs when the foot is anchored to the ground and the weight of the body, twisting inward, is transmitted to the flexed knee. There is usually very little increase in synovial fluid following the injury. The displacement can usually be reduced by rotary motion of the tibia with the knee flexed. If this can be accomplished, the knee will straighten freely. A cast should be applied with the knee extended. The cast should extend from above the ankle to the groin, and may be kept from sliding down by strips of adhesive along the sides of the leg turned back over the lower end of the cast and incorporated in the plaster. About three weeks is necessary for ligamentous healing. The cast may then be removed and a less rigid type of support, such as an ace bandage, applied during the further convalescent period.

If there is a single recurrence of the semilunar injury, it is unlikely that recovery will take place without operative removal.

When the extended knee is struck a blow from the inner or outer side, injury may be caused to the lateral ligament of the opposite side. There is localized tenderness over the ligament, limitation of complete extension, and a considerable amount of synovial fluid output. Flexion is painless, but if tension is put on the ligament, applying pressure to the opposite side while supporting the leg at the ankle, pain is felt in the injured ligament.

These lateral ligament injuries are common, and are usually treated too casually. The most satisfactory treatment seems to be immobilization in the "walking cast", just described for postreduction cartilage injuries. The cast is used at least three weeks and usually prevents the common subacute or chronic synovitis so often developing after this injury.

HEMORRHAGE

There is a point of special diagnostic importance following a formidable injury to a knee joint, and that is, if joint swelling begins immediately it means hemorrhage into the joint. This is usually the result of fracture into the joint cavity and should be treated by immobilization and ice packs. Aspiration should never be done within 48 hours for two reasons. The first is prolongation of hemorrhage by relief of pressure. The second is the danger of infection when aspiration is done before the joint has yet had an opportunity to react to the insult and develop some resistance to infection. Such a joint full of fresh blood, offers a most admirable place for infection, even though the technique of the operator be fastidious.

On the other hand, it is very necessary and helpful to aspirate at the proper time since all this accumulated blood will not be absorbed and will undergo organization to form dense fibrous adhesions at a later period. The resulting irritation is frequently responsible for a chronic synovitis or arthritis and its accompanying limitation of motion and delayed recovery. Complete immobilization first, then graduated exercise with diathermy, whirlpool bath and massage is the treatment of choice.

When a chronic synovitis occurs and there is developed an excessive amount of synovial fluid, the withdrawal of 20 or 30 cc. followed by the injection of five to ten cc. of Pergl's solution is often beneficial. Pergl's solution is a mild colloidal solution of iodine, and the injections are repeated about twice a week for four or five times.

Injection of air into the joint is sometimes useful in breaking up adhesions as well as being of some diagnostic value when an x-ray is taken following the injection.

RUPTURE OF LIGAMENTS

Rupture of the crucial ligaments is often accompanied by fracture of the tibial spines and hemorrhage into the joint. If the anterior crucial ligament is broken, the knee has the ability to extend beyond the normal range. If the posterior ligament is broken, it is possible to move the tibia forward on the flexed knee beyond the normal range.

Conservative treatment is usually effective in producing a good result. This consists in the reduction of a dislocation, if it is present, and the application of a cast from the toes to the groin. For an injury to the posterior ligament, the knee is placed in a position of almost complete extension because here it is relaxed. If the anterior crucial is ruptured, however, the position of fixation should be about 150 degrees to relax this ligament.

Osteochondritis dissecans is a condition which simulates an infarct. It occurs in a period of three to six months following a formidable but frequently unrecorded injury. The symptoms are so mild as to be confusing. There is frequently no pain but a sense of fatigue and of slight discomfort in the joint. There is rarely any swelling or tenderness. The possibility of its development, even after relatively trivial injury, should not be overlooked.

The x-ray shows an area of density surrounded by an area of rarefaction occurring almost invariably on the outer aspect of the inner condyle of the femur. The area may be from one to three centimeters in circumference.

JOINT MOUSE

In late cases the infarcted dense portion may break through the cartilaginous covering and gain access to the joint. This small body, which gains a cartilaginous covering from synovial supply usually floats from one place to another in the joint, and forms the well-known "joint mouse." If it gets between the joint surfaces or under the patella, it can cause lockage similar to that seen in a ruptured semilunar cartilage. The diagnosis may rest with the x-ray findings, including lateral oblique and anteroposterior views. The loose body should be removed by operation whenever discovered, whether before it has broken through the cartilage into the joint or when it is free. If free, it may be difficult to locate at operation, and an incision giving good exposure of the joint should be used.

One of the most exacting problems in surgery is to know what to do with the various types of puncture wounds into a knee joint. Bullet wounds should be treated as sterile wounds until proved otherwise. A bullet travels at such speed that penetration of the tissues causes enough friction and heat to sterilize the tissues it comes in contact with. Bits of clothing, dirt, and debris should, of course, be removed from the superficial tissues and the tissues sterilized with local debridement, saline irrigation, and alcohol. Immobilization in plaster of Paris is also an important factor in preventing infection. Under no circumstances should a bullet be removed from a knee joint in less than 36 to 48 hours. If there is a reaction indicated by pain and

rise of temperature after this time, through and through drainage and the removal of the foreign body is indicated. If the bullet interferes with function it should be removed even though there be no infection.

Other wounds entering the knee joint should be treated according to the probability of infection as determined by the nature of the accident. If immediate arthrotomy is called for, the joint should be opened widely and after debridement and removal of foreign material, there should be given a thorough flushing with normal salt solution, using four or five hundred cc. Then the joint should be closed tight and treated by proper immobilization. If pain and distension beyond the expected amount should develop, free drainage through and through is indicated.

PATELLA FRACTURES

I shall not close without saying something about fractures of the patella. Except for a very small percentage, which occur longitudinally or transversely without appreciable displacement, they represent an operative problem. However, there should be a period of immobilization in plaster for from four to seven days before operation should be undertaken, provided the fracture is not frankly compounded. I had always thought of the transverse fracture of the patella as being due to direct trauma until I saw one in which the fragments were separated at least four inches as the result of forceful quadriceps contraction. The patient's feet went out from under him, his knee never hitting the ground.

It is necessary, not only to bring the fragments of the patella together, and to fix them firmly with chromic catgut, wire or fascia lata, but also to debride and suture carefully the lateral tears in the ligamentous structures of the joint which extend frequently as far as the lateral ligaments of the joint. In fact, when these structures are repaired properly, the fragments should fit very accurately together and the fixation of the fragments becomes mechanically a problem of minor difficulty.

When the lower fragment is badly comminuted or small, it may be removed and the patella tendon sutured to the upper fragment with satisfactory and more speedy recovery.

In summarizing, let me bring again to your attention the following principles:

1. The knee joint inherently is probably the hardest working and most abused joint in the body.

2. It responds to injury profoundly unless adequate post-traumatic protection is given.

3. Aspiration of hemorrhage occurring in the joint should not be done short of 36 to 48 hours.

4. Any operative procedure or operation on any injured joint should be withheld until the joint has had time to develop tissue reaction, that is from four to seven days, and then attacked with the most scrupulous surgical technique.

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CEREBRAL HEMORRHAGE

Vitamin K concentrate, if administered immediately after birth, may serve to check cerebral hemorrhage and other forms of bleeding due to birth injuries, W. W. Waddell, Jr., M.D. and DuPont Guerry, III, M.D., Charlottesville, Va., suggest in *The Journal of the American Medical Association* for June 3.

Such injuries, they point out, frequently cause death or permanent mental and physical crippling.

Their conclusion is based on a study of the blood clotting time in ten normal newly born infants to whom they gave vitamin K and ten others, used as controls, from whom the vitamin was withheld. The clotting time of the treated infants was quite generally the lower, with none of the daily variations which were noticed in the control infants.

The importance of early vitamin administration after birth is suggested by the fact that after the fifth day the clotting time of the blood tended to fall to an apparently common level in the control infants, and that hemorrhagic disease rarely occurs after the fifth day of life. This suggests strongly a relationship between hemorrhagic disease of the newborn and the amount of the blood clotting factor present in the blood.

SWIMMING AND HEALTH*

By DORSEY KETCHUM, M. D.
Huntington, West Virginia

It is always rather difficult for an otorhinologist to write a paper which would prove of interest to a mixed group of other physicians. I could have attempted to prepare a paper on vertigo, headaches, or facial pain which would have been of general interest to all, but many good articles can be found on these subjects, so I decided to write on swimming and health, there being very little found in the literature on this important subject. As the swimming season is just beginning, this paper will at least be a timely one. It is a subject of importance not only to our profession, but to the layman as well, because of the increasing amount of interest in swimming as a sport and as hydrotherapy.

Swimming is a universal recreation of the highest order and is recognized by the best authorities on physical development as one of the finest exercises for developing the body. Not only does it bring into play almost all the muscles of the body, strengthening them, especially those of the arms, hips and the shoulders, but at the same time relaxes those used constantly in walking and maintaining the body in its upright position. It strengthens the lungs because it compels deep breathing and in turn strengthens the muscles of respiration, thereby increasing chest expansion.

Swimming strengthens the nervous system because it tends to induce natural sleep. It is impossible to worry much while one is swimming, so mental balance is preserved somewhat as well as muscular symmetery. It is a healthful and invigorating exercise and there is no better way to offset the evils of a sedentary life. Everyone should know how to swim in order to protect himself from drowning, and a good swimmer with knowledge of life-saving is a real asset to his community.

*Read before the Junior Medical Society, Huntington, May 4. 1939.

THE AUTHOR

Dr. Ketchum, graduated Medical College of Virginia, and following interneship, was resident there for twenty-seven months. Specialty: Ophthalmology and Otorhinology.

The beneficial results obtained in infantile paralysis from swimming are well known and more recently it has been used in mental institutions in certain cases, particularly dementia praecox, with satisfying results.

All the good results of swimming are obtainable only when the recreation is practiced under the best sanitary conditions. The hazards of swimming in water which is unsafe from the standpoint of health, overbalance by far the benefits incident to the exercise and the pleasure derived from the sport.

Bathers should always keep in mind that water furnishes an easy and rapid means of transmitting many types of dangerous disease germs. The American Public Health Association from the result of a questionnaire sent to physicians throughout the country lists eye, ear, nose and throat infections, skin infections, venereal disease, gastrointestinal disease and many other maladies as transmissible by swimming pool water or bathing suits. The eye, ear, nose and throat infections head the list, and as this is my specialty, I will discuss these diseases only.

One of the most important problems of the otorhinologist today is the prevention of aural and nasal accessory sinus infections, which have resulted from the tremendous increase in popularity of the public bathing places, and can be attributed directly to swimming and diving. This, naturally, has greatly increased the incidence of infections and challenges the

otorhinologist to a closer investigation of the physics, physiology, and pathology relating to them.

A survey of the literature reveals that the profession has sadly neglected this phase of preventive medicine, and that sanatoria and public health officials have been much more alert to its importance. The response that the American Public Health Association received from the questionnaire mentioned above proves that they have not been given the co-operation they desire and deserve from the physicians. On the other hand, when on reviewing the literature of the sanitary engineers, one is impressed by the tremendous amount of work that has been done in the attempt to make public baths and swimming safe.

AURAL AND SINUS INFECTIONS

We learned in biology that every species of animal life is adapted to its environment and the functions of all its organs fitted to this environment. Time will not permit a discussion of comparative anatomy but we will readily admit that man is far removed from being an aquatic animal and is out of his environment when in water. Due to this fact man has no mechanism to prevent water from entering the respiratory tract, and here we have the first cause for aural and sinus infections.

It is well known that just plain water retards the normal motion of the cilia lining the nasal passages. The chlorine used in most pools also has a deleterious effect upon the cilia. This effect on the only protective mechanism found in the nose, plus the weight of water when one dives, forces water into the nasal accessory sinuses. Forceful blowing of the nose can also directly infect the sinuses or the eustachian tube. Practically all professional swimmers give a history of sinus disease, otitis and sometimes ruptured drum membranes.

The second theory as to the cause of infection is that the resistance of the body is lowered due to chilling, and the bacteria normally inhabiting the nasal passages gain entrance to the sinuses or eustachian tubes.

The question of the duration of time one can remain in the water without reducing the body temperature sufficiently to lower one's resistance is of paramount importance. We know of course that the body will give off its heat to the colder water. It is estimated that if one bathes in water of a temperature of 70 degrees, in fifteen or twenty minutes the body will give off fivefold the amount under normal metabolism. It has never been definitely understood just how long one can remain in cold water without doing any harm, but many investigators have definitely proven by animal experimentation that experimental animals can be much more easily infected with bacteria when their bodies are chilled. It is thought that chilling will increase leukocytosis but decrease the motility and phagocytic activity of the leukocytes.

It has been proven satisfactorily that instead of congestion and stasis of the blood vessels in the nasal mucous membrane due to chilling of body surface, there is just the opposite effect, a reflex vasoconstriction and ischemia. It has also been observed that the temperature of the nasal and pharyngeal mucous membrane dropped as much as six degrees C. in some cases. The conclusion is that this disturbance of equilibrium between host and bacteria excites infection.

SENSITIVENESS TO COLD

Another danger that awaits swimmers is hypersensitiveness to cold. Horton, Brown and Roth of The Mayo Clinic reported a series of 27 cases who proved to be sensitive to cold varying from local reaction such as uticarial wheals and edema, to general reaction and unconsciousness. Nine of this number had to be rescued from the water and two were unconscious for about two hours.

The thing that we should be concerned about is the preventive measures advised to control these infections. Following are a few of the most important precautions as set forth by a committee on Hygiene of Swimming:

Public health authorities in most states have advised adequate rules for construction, maintenance and bacteriologic examination of public pools. Notices should be posted at all pools in regard to proper conduct of bathers in order to maintain proper sanitation. It should be impressed upon them that they should not enter pools if they are infected because of the harm they might do to themselves. As we all know, every chronic otitis media is a potential mastoid with all of its complications. Bathers should also be informed of the chances of infecting others. The stay in water at any interval should not be more than an hour to minimize loss of body heat due to chilling. Improper habits of swimming should be refrained from, such as diving feet first, hawking, blowing nose, etc.

Dr. Hallock Moore, of Huntington, West Virginia, states that during his residency on otorhinology in New York City, he experimented on some professional swimmers with satisfying results by using an oily nasal spray before entering the water and then an ephedrine spray on coming out of the water.

It has also been advised that oily plugs of raw cotton which contain their natural oil be worn in the ears.

I feel that I cannot stress too much the importance of this subject when one stops to think that in every large public pool there are bathers with open lesions, venereal diseases, draining ears, and in all probability menstruating women. Every known precaution should be taken to protect the youth of the country because of the increase in popularity of public pools and swimming in boys' and girls' camps.

CONCLUSION

1. Problems incident to swimming and diving demand the attention of the physician as well as the public health authorities.

2. Prolonged chilling of the body lowers its resistance and together with the effect of water on the protective mechanism of the mucous membrane of the nose leaves an avenue for entrance of bacteria into sinuses and ears.

3. All bathers should be instructed as to the dangers of swimming and how to minimize them.

4. Those hypersensitive to cold should be desensitized.

5. Better cooperation between our profession and public health authorities is advised.

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RISK IN HEART DISEASE

That the operating risk for those who have a severe heart disease is not as great as many people think, is indicated in a report by Harold J. Brumm, M.D., and Fredrick A. Willius, M.D., Rochester, Minn., in *The Journal of the American Medical Association* for June 10.

Reporting on a study of the surgical risks in patients with heart disease, the two Rochester men say they found a death rate of only 4.3 per cent among 257 persons with severe heart disease who underwent imperative major operations.

Pointing out that they believe the mortality in the group of cases studied was remarkably low, the authors say this should encourage the sufferers from heart disease when surgical intervention is necessary.

"However, it must not instill false optimism into the clinician or the surgeon," they warm, "for he must realize that this accomplishment is not of casual origin but one resulting from the coordination of careful preoperative study and judicious selection, expert administration of anesthetic agents and skillful surgical technique and judgment. Operation must be confined to those cases presenting unmistakable indications.

"Likewise, gentleness in the manipulation of organs and tissues lessens the dangers of surgical shock, which in itself may tilt the balance away from recovery in these patients. Of paramount importance is the surgeon's determination to limit the operation to the procedure planned in advance and to avoid undertaking additional operative steps that might be indicated in the patient without heart disease."

Tuberculosis Abstracts

Furnished Through the Courtesy of the West Virginia Tuberculosis Association

An Advisory Committee on Tuberculosis of the Medical Society of New Jersey has drafted a statement of principles and standards regarding tuberculosis case-finding among pupils in public schools. This carefully drafted statement, representing the views of one organized body of physicians, should be helpful to all physicians as the practice of case-finding in schools is growing in popularity. Space prohibits reprinting the report in full—some passages have been abbreviated, others omitted.

CASE-FINDING IN PUBLIC SCHOOLS

1. Question—How valid is the tuberculin test? May we assure parents that the positive or the negative reaction is absolutely correct?

Answer—The tuberculin test is one of the most reliable tests that we have for determining whether or not tubercle bacilli have at some time entered the body. If positive, it does not necessarily indicate the presence of tuberculosis, the degree of infection, nor the extent of damage done, if any.

For all practical purposes, exceptions to this statement may be ignored. They should not cause worry to parents.

2. Question—Which grades should be tested?

Answer—The ideal plan would be to test children of all grades and ages.

First Grade Pupils—In this group one is likely to find so small a number of infections as hardly to make the effort worthwhile on a very large scale. On the other hand, experience has shown that very young children with positive tuberculin reactions will serve as leads to a large number of open cases of tuberculosis that were active sources of infection.

Kindergarten—The same may be said of this group.

High School—The high school age is receiving special attention for several reasons. First, because of the high morbidity and mortality rate known to exist between the ages of 15 and 25. Secondly, because in the average high school a large percentage of this important age group is available under ideally-controlled conditions. More cases of tuberculous infections are likely to be found in this age than in the lower grades.

3. Question—When is retesting advisable?

Answer—All tuberculin-negative students should be retested at least once a year. All tuberculin-positive students should be rex-rayed at least once a year, unless something abnormal is found, when the frequency of rex-raying will depend upon the particular circumstances in each case.

4. Question—Is the Mantoux test so definitely superior to other tests that the question of choice may be ignored?

Answer—The Mantoux test is definitely superior to other tests because:

1. It is twice as sensitive as the scratch test of Von Pirquet.
2. It is an exact quantitative test.
3. The response when positive is more definite, and more prompt than in all other tests.

However, as a second choice, especially in the face of objection to the "needle," the Patch test may be used. The following are the objections to the Patch test:

1. It must be kept dry.
2. It must not be interfered with by the child.
3. Frequently when examined at the end of 48 hours, it may be negative, and require four days for a reading.
4. Under the best of circumstances it is at least five per cent less reliable than the Mantoux test.
5. The greater cost of each test would also become a financial problem if planned for a large number.

5. Question—What is the significance of different degrees of reaction?

Answer—Different degrees of reaction have no significance beyond the fact that they indicate different degrees of sensitivity. This has no bearing upon the question of the amount of infection or disease, and need not concern school administrators or even school physicians. It is better not to confuse the minds of parents with any attempts to interpret degrees of reaction.

6. Question—Should all positive reactors be x-rayed? Are there indications to warrant x-raying of negative reactors?

Answer—All positive reactors should, without exception, be x-rayed.

With reference to negative reactors, an x-ray is not necessary to exclude tuberculosis; but it is frequently advisable for certain special reasons, such as malnutrition, suspicion of heart disease, chest deformity, or recent non-tuberculous lung infections such as pneumonia, or the presence of symptoms of chronic bronchitis or pulmonary disease of non-tuberculous character.

7. Question—On the accuracy of the paper x-ray film, is answered by defining the limitations of paper film, appraising its advantages and stating that paper films are quite satisfactory in the "sifting" process of screening out of abnormalities.

8. Question—Is the celluloid film infallible?

Answer—No. There are lesions in the lung so small and so translucent to the ray that they may not be demonstrable in any films.

9. Question—Assuming a positive reaction to the Mantoux, and a negative reading of a paper film, what should be told parents?

Answer—A positive Mantoux reaction, by itself, does not indicate that a person has tuberculosis. "If the tuberculin test is positive (red and swollen), it means only that tuberculosis germs have at some time entered the body. It does not tell how many there are, or if any damage has been done. It should not cause worry to parents.

"If the test is positive, the child's chest should be x-rayed to be certain that no harm is being done in the lungs. An x-ray examination should also be made of every member of the household to learn if the child is being exposed to an open case of tuberculosis. Frequently this may reveal other cases of tuberculosis before the victim is at all aware of the disease. If no one in the family has the disease, search should be made among the child's playmates or others with whom he comes in close contact. It is perfectly safe for a child with a positive reaction to mingle with other children,—for unless there are tubercle bacilli in his sputum, he cannot pass them to others. Tuberculosis often exists in a concealed form in unsuspecting persons, and it is important to make the discovery in order to prevent further spread of the disease."

The parents should also be advised that the tuberculin-positive student should be x-rayed regularly at least once a year so as to detect any evidence of reinfection as early as possible. If the tuberculin test is negative, no x-rays are necessary until a subsequent tuberculin test proves to be positive.

10. Question—Will you outline briefly the follow-up procedure for the average school district?

Answer—After a tuberculosis survey, the parents are advised in a general way as to the results, and instructed to see their family physician for further explanation of the same.

Parents receiving reports to the effect that the Mantoux test was negative are advised of the importance of having the children retested annually by their own doctor, as long as they are negative.

In the case of the child who had a positive Mantoux with a negative x-ray, the parents are advised to have the child x-rayed, at least once a year thereafter through their own physician. They are also advised to have all other members of the household x-rayed, and all children under fifteen Mantoux tested.

In the case of those children in whom the x-ray showed some abnormality, the parents are particularly urged to take the report of the findings to their family physician at once. He is to be further informed of the desirability of communicating personally with those conducting the survey, who should endeavor to cooperate with him to the fullest extent on behalf of his patient. For those who cannot afford private service, the facilities of the tuberculosis clinics should be made available.

With reference to the schools, plans are formulated for continuing these surveys so as to test all new admissions each spring, as well as those previouly tuberculin-negative.

It is advised that no child should be excluded from school until the x-ray reveals findings that would warrant it and no type of active case, communicable or not, should remain in school—all active cases require treatment.

Tuberculosis Case-Finding in Public Schools, A. E. Jaffin, M.D., The Journal of the Medical Society of N. J., Vol. XXXVI, No. 2, Feb. 1939.

TUBERCULIN SENSITIVITY

Tuberculin sensitivity has been used in Cleveland as a means of finding early cases of pulmonary disease in the adolescent child without great cost. The small and slowly decreasing number of reactors in the first grade and the high schools, the low morbidity and mortality in both sexes below the 35-year limit, and the drop in unreported cases all support the theory that a consistent use of this method of attack should make tuberculosis a relatively rare disease in about ten years. The fewer cases there are in a community, the more necessary it is to use the tuberculin test among children to locate them. Tuberculin testing eliminated tuberculosis among cattle. It can do the same for man using the reaction as a means of finding tuberculosis in the child's environment rather than in the child himself.—Edwards, Journal-Lancet, 1939, 59.

President's Page

Once again the West Virginia State Medical Association, in cooperation with the State Health Department is offering to the profession a series of postgraduate conferences on obstetrics and pediatrics, for five consecutive weeks beginning July 17, 1939.

Our Association and the Department of Maternal and Child Hygiene have gone to considerable trouble in obtaining excellent speakers and teachers for these postgraduate conferences, and it is hoped that not only the local committee but every individual member of the Association will plan to attend the conferences themselves and take a personal interest in their success. Urge all your friends and fellow members to attend. The complete schedule for these conferences and the names of the speakers will be found elsewhere in this issue of the JOURNAL.

The members of the medical profession realize only too well that they can no longer sit back after they have been licensed to practice medicine, and not try to keep up with modern trends and newer methods. A good many spend time and money attending clinics and county society meetings to obtain this knowledge. The purpose of these postgraduate conferences is to bring the finest talent in obstetrics and pediatrics directly to you so that there will be very little loss of time and no expense. The Association expects to present postgraduate certificates suitable for framing to all who attend the postgraduate courses. It is the duty, as well as the privilege of every doctor, to avail himself of this splendid opportunity to improve his knowledge and thereby better serve his patients.

Preliminary reports lead us to believe that we will have a fine attendance at our state meeting at White Sulphur on July 10-11-12. The scientific program is an excellent one and in this beautiful spot we all should have a wonderful time. Looking forward to seeing you all at our seventy-second annual meeting, I am,

Ray M. Bobbitt

President.

West Virginia Medical Journal
P. O. Box 787
Public Library Building
CHARLESTON, WEST VIRGINIA

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ON TO WHITE SULPHUR

The seventy-second annual meeting of the West Virginia State Medical Association will be held at the Greenbrier Hotel, White Sulphur Springs, on July 10-12, 1939. The complete convention program and full details relating to the White Sulphur session will be found further back in this Convention Number of the JOURNAL.

The Association's Committee on Scientific Work, headed by Dr. W. R. Goff, has secured a distinguished assembly of nationally-known medical and surgical talent, with leaders in almost every branch of medical science represented on the convention program. Each Section program is featured by one nationally-known leader and, with the talent provided by our own membership roster, a comprehensive and well balanced schedule of scientific presentations has been worked out.

A new innovation at the White Sulphur Springs meeting will be the limitation of all general sessions to the morning hours. The three general meetings will be held on the three mornings of the convention from 9:30 until 12:30 o'clock. Section and special society meetings will be held during the afternoon hours. In working out this program arrangement, the committee felt that this plan would give every member at least two free afternoons at White Sulphur, and yet would provide at least two scientific meetings each afternoon for the specialties and others who cared to attend.

In addition to the scientific sections of the Association, there will be sessions of the West Virginia Heart Association, the West Virginia Obstetrical Society and the West Virginia Society of Industrial Physicians and Surgeons. Special luncheon meetings have been arranged for the alumni of Jefferson Medical College and the Medical College of Virginia, for the Alpha Kappa Kappa and the Phi Beta Pi fraternities, Army and Navy reserve officers, the American College of Physicians, The Public Assistance Orthopedic Surgeons, the Anesthetic Society, and the Association's Syphilis Committee. The hour and the places of these special luncheons will be found further back in this issue, together with announcements relating to the golf tournament, the tennis tournament, banquet, dance and other convention details.

Convention rates at the Greenbrier Hotel will be $10 per day on the American plan. For those who prefer, there are three excellent smaller hotels in the village of White Sulphur: the Alvon, the Hart and the West Virginian hotels with rates (European plan) from two dollars up.

On behalf of the Greenbrier Valley Medical Society we extend a welcome to every doctor and every doctor's wife to the White Sulphur Springs meeting. We know that every member in attendance will enjoy a pleasant and profitable three day session.

OUR TUBERCULOSIS PROBLEM

We are publishing elsewhere in this issue a paper entitled "The Problem of Tuberculosis in West Virginia", by Dr. V. L. Kelly of Pinecrest Sanitarium. Every doctor in West Virginia should read this paper. It is an excellent presentation of the problem in West Virginia as we see it now. Certainly this State needs at least double the number of beds we now have for the tuberculosis victims in our midst. The increase in the facilities for the treatment of

tuberculosis is one of the stated objectives of the Wagner Bill with which we are in full accord, although we doubt the wisdom of the proposed method for attaining that objective.

At any rate the profession and the populace of West Virginia are under obligation to Dr. Kelly for an excellent piece of work.

COLLECTION AGENCIES

The new West Virginia law regulating collecting agencies goes into effect on July first. The new statute provides that every agency must comply with the provisions of the act and file a $2,000 surety bond with the State to indemnify their clients against loss. The act also provides an annual license tax of $100 per year. Failure to comply with these provisions will subject an offending company to severe penalties.

At one time or another, almost every doctor has had a sad and embittering experience with some collecting agency. Such experiences are reported several times each year to the Association headquarters and warnings are immediately issued against agency rackets. In spite of this, irresponsible and itinerant collection rackets continue to exact toll from the medical profession.

While the new collection agency law will probably be difficult to enforce, it should be welcomed for providing the first public protection we have ever had against collection rackets. A few itinerants and shysters will still ply their trade, but the number should be considerably reduced. When Association members are approached in the future by agency representatives, they can protect themselves by the simple expedient of asking to see the agent's state license.

Three collection agencies, after thorough investigation, have been accepted as advertisers in this JOURNAL. They are all licensed and comply with the provisions of the new law. While we cannot speak for other agencies, we can recommend these three to members who are interested in this service. They are listed in the Buyer's Guide on page xxx.

POSTGRADUATE CONFERENCES

Plans for the 1939 postgraduate conferences in obstetrics and pediatrics for the northern and southern sections of West Virginia have been completed and programs giving the entire itinerary will be mailed out early in July to every practicing physician in the state. The conferences will open on July 17 and will continue for five consecutive weeks.

The county societies which have been awarded the 1939 courses in the northern circuit are Hancock, Marshall, Central West Virginia, Barbour-Randolph-Tucker and Potomac Valley. The southern circuit societies are Mercer, Mingo, Cabell, Raleigh and Greenbrier Valley. Dr. E. D. Plass and William F. Mengert of the University of Iowa and Dr. Lee Palmer of Louisville will give the postgraduate courses for the northern circuit. Dr. William J. Deickman, Chicago, and Dr. Edwin L. Bauer of Jefferson Medical College, Philadelphia, will give the southern courses.

Arrangements have been made by the Association's Committee on Infant and Maternal Welfare to award postgraduate certificates, suitable for framing to all doctors who attend the complete series of lectures. Each sponsoring society will have one of the lecturers for one day each week, for five consecutive weeks. A number of the sponsoring county societies are arranging clinical demonstrations in addition to the postgraduate lectures.

YOUR CHEST SHOULD BE FLAT

"Your chest should be flat," says S. A. Weisman, in a little book written after examining many thousand school children and college students and determining the thoracic index—the ratio of the width to the depth of the chest. Contrary to the belief of the majority of physicians it was found that the round deep chest with a higher thoracic index is associated more frequently with tuberculosis than the wide flat chest. Correlating the thoracic index to age, sex, weight, height, vital capacity, racial stock and environment, he concludes that the round deep chest is associated with a retarded physical development, which occurs more frequently in an unsuitable environment than a more favorable one. Children with rounded shoulders and deeper chests should be watched carefully if tuberculosis is to be prevented.

Convention Program

Official Call

To the Officers and Members of the West Virginia
State Medical Association

The seventy-second annual session of the West Virginia State Medical Association will be held at White Sulphur Springs West Virginia from Monday, July the tenth to Wednesday, July twelfth, Nineteen hundred and thirty-nine The Council will convene at 10:30 o'clock on Monday Morning, July the tenth,

The House of Delegates will convene at four thirty o'clock on Monday afternoon, July the tenth, and again on Tuesday evening, July the eleventh.

The Scientific Assembly of the Association will open with the General Meeting held on Monday, July the tenth, at 9:30 A. M.

The various sections of the Scientific Assembly will meet during the three afternoons of the convention according to their respective programs.

Attest
Joe W. Savage
Executive Secretary

Ray M. Bobbitt, M. D.,
President

Charleston, West Virginia, June the fifteenth

GENERAL SCIENTIFIC ASSEMBLY

Auditorium, Greenbrier Hotel
Monday Morning, July 10, 1939
9:30 O'clock

CALL TO ORDER

Dr. Ray M. Bobbitt, Huntington, President.

INVOCATION

Reverend Ben Roller, White Sulphur Springs.

ADDRESS OF WELCOME

Dr. J. G. Leech, Quinwood, President, Greenbrier Valley Medical Society.

SCIENTIFIC PROGRAM

"The Problem of Headache."

Dr. William Thornwall Davis, Professor of Ophthalmology, George Washington University School of Medicine, Washington, D. C.

"A brief discussion of the known pathology of this symptom. The following causes are considered and the type of headache accompanying such causes: Syphilis, nephritis, arteriosclerosis, vascular hypertension, carbon monoxide, aniline and certain drugs, improper lighting, endocrine disorders, diseases of the central nervous system, neurosis, et cetera."

Discussion:

Dr. H. V. Thomas, Clarksburg.
Dr. Ivan Fawcett, Wheeling.

"Sinus Disease in Children."

Dr. E. C. Mitchell, Professor of Pediatrics, University of Tennessee School of Medicine, Memphis, Tennessee.

"Sinus disease comes frequently to the general practitioner and the pediatrist because there may be no symptoms referable to the nose. Sinusitis is observed in three stages: acute, subacute and chronic. The treatment, therefore, is not empirical but must be administered in accordance with the manifestations in the individual case. This paper will deal largely with chronic sinusitis. The old dictum that 'once a sinus sufferer, always a sinus sufferer' is not true if the condition is recognized and treated during the growth period."

Discussion:

Dr. Jack Basman, Charleston.
Dr. E. C. Hartman, Parkersburg.

"Bursitis and Other Painful Conditions of the Shoulder."

Dr. George E. Bennett, Associate Professor of Orthopedic Surgery, Johns Hopkins University School of Medicine, Baltimore, Maryland.

"A consideration of the causes of non-union of the humerus, the tibia and the patella with a discussion of the treatment of same."

Discussion:

Dr. Randolph L. Anderson, Charleston.
Dr. Athey R. Lutz, Parkersburg.

Tuesday Morning, July 11, 1939

Auditorium, Greenbrier Hotel

9:30 O'clock

"Obstetric Problems With the Conflicting Interest of the Mother and Child."

Dr. Thaddeus L. Montgomery, Clinical Professor of Obstetrics, Jefferson Medical College, Philadelphia, Pennsylvania.

"The methods of prenatal care which serve best the interest of the mother also tend to produce a healthy offspring. There are certain complications, however, in which conflict arises between the interest of the mother and fetus. These complications occur particularly in the face of preeclamptic toxemia and nephritis, in antepartum hemorrhage, and in certain instances of disproportion of mother and fetus. The difficulties are discussed and methods described by which both fetal and maternal life may be preserved in a reasonable proportion of such situations."

Discussion:

Dr. W. W. Point, Charleston.
Dr. James R. Bloss, Huntington.

ORATION ON SURGERY

"The Surgeon's Responsibility in This Changing World."

Dr. Robert J. Wilkinson, Huntington.

"A brief outline of the history of surgery with a review of modern diagnostic acumen, with the surgeon's responsibility to the patient, to the family doctor and to himself."

"The Pathologic Physiology of Edema, With Special Reference to Its Treatment."

Dr. William B. Porter, Professor of Medicine, Medical College of Virginia, Richmond, Va.

"A brief survey of factors which are involved in the mechanism of edema. An effort will be made to lay a foundation for a sane approach to the control of the various types of edema which are seen in every field of clinical medicine."

Discussion:

Dr. Edward J. Van Liere, Morgantown.
Dr. William C. Stewart, Charleston.

"The Significance of Oxygen to the Surgical Patient."

Dr. Donald E. Brace, Professor of Anesthesia, New York Medical College, New York City.

"The significance of oxygen in the reaction of the surgical patient to various insults such as trauma, blood loss, cold, etc., and the prom-

inent position occupied by adequate oxygen therapy in minimizing the effects of these disturbances."

Discussion:

Dr. L. D. Norris, Fairmont.

Dr. Boyd F. Brown, Huntington.

Wednesday Morning, July 12, 1939

Auditorium, Greenbrier Hotel

9:30 O'clock

"Concentrated Oxygen and Its Therapeutic Application in Surgery."

Dr. Charles W. Mayo, Associate Professor of Surgery, University of Minnesota Graduate School of Medicine, Rochester, Minnesota.

"Inhalations of 100 per cent oxygen have proved to be a valuable adjunct following many major surgical procedures. It should be thought of from the standpoint of prevention of complications rather than merely as a form of treatment of the complication. It has proved to be of value in cases of obstruction, peritonitis, pneumonia, septicemia, headache (spinal, encephalographis, migraine), etc."

Discussion:

Dr. Russell B. Bailey, Wheeling.

Dr. Wade H. St. Clair, Bluefield.

ORATION ON MEDICINE

"The Character and Significance of Heart Pain."

Dr. R. O. Rogers, Bluefield.

"The pain of cardiac ischemia is dealt with. An effort is made to treat separately the symptom-complex angina pectoris and the disease entity coronary thrombosis. A more optimistic outlook in both is suggested."

"The Causes and Prevention of Preoperative Death in Prostatic Hypertrophy."

Dr. W. J. Engel, Cleveland Clinic Urologist, Cleveland, Ohio.

"A study of patients with bladder neck obstruction who died before any surgical treatment could be instituted. Improved methods of preoperative management are discussed which have materially reduced the preoperative mortality and have also favorably influenced the operative mortality."

"Pneumonia Therapy."

Dr. J. G. Bullowa, Clinical Professor of Medicine, New York University College of Medicine, New York City.

"1. The specific therapy of the pneumococcic pneumonias—serum, sulfapyridine, both; experimental and clinical evidence; advantages and disadvantages of each; what shall the physician do?

"2. Other therapy and why."

Discussion:

Dr. J. L. Blanton, Fairmont.

Dr. J. R. Shanklin, Bluefield.

SECTION ON PEDIATRICS

Virginia Room, Greenbrier Hotel

Monday Afternoon, July 10, 1939

2:00 to 4:30 O'clock

Chairman—Dr. J. L. Blanton, Fairmont.

Secretary—Dr. Theresa O. Snaith, Weston.

"Panel Discussion on Diarrhea."

Dr. A. M. Price, State Health Department, Charleston.

Dr. George M. Lyon, Huntington.

Dr. E. C. Mitchell, Memphis, Tennessee.

EYE, EAR, NOSE & THROAT SECTION

Ballroom, Greenbrier Hotel

Monday Afternoon, July 10, 1939

2:00 to 4:30 O'clock

Chairman—Dr. Welch England, Parkersburg.

Secretary—Dr. J. Hallock Moore, Huntington.

"Anatomical Variations of Interest in Ear, Nose and Throat Practice."

Dr. John H. Trotter, Morgantown.

"A presentation of anatomical abnormalities, which, although known by all of us, are so often forgotten in the familiarity with which we view the specialty. It is impressed again that constant review of the anatomy leads to better and more confident surgery."

Discussion:

Dr. Sobisca S. Hall, Clarksburg.

"Motor Anomalies of the Eyes."

Dr. Wm. Thornwall Davis, Washington, D. C.

"The diagnosis of neuromuscular anomalies of the eyes will be discussed and the choice of operation in the different forms of squint. Particular reference will be made to the vertical imbalances and their treatment and when surgical intervention is considered necessary."

Discussion:

Dr. Joseph H. Maxwell, Fairmont.

"The Value of the Determination of Muscle Imbalance in Refraction."

Dr. C. T. St. Clair, Jr., Bluefield.

"1. The muscle test and the short time consumed in the usual routine refraction.

"2. Explanation of the practical test; how done.

"3. Patients referred for refraction whose symptoms are entirely due to muscle imbalance.

"4. Muscle exercise for correction of imbalance."

Discussion:

Dr. Ben W. Bird, Jr., Princeton.

"The Middle Ear From the Point of View of Infection."

Dr. A. Seletz, Charleston.

"Otitis media in relation to sinusitis. Anatomic and histologic peculiarities are discussed and clinical manifestations, citing 1268 cases, are given.

"The writer divides his experience into three periods, reducing complications from twelve per cent to five and one-half per cent to three per cent.

"Chemotherapy as a remarkable aid in otorhinology is acknowledged and 47 cases treated with sulfanilamide and its derivatives are tabulated."

Discussion:

Dr. F. O. Marple, Huntington.

WEST VIRGINIA SOCIETY OF INDUSTRIAL PHYSICIANS & SURGEONS

Auditorium, Greenbrier Hotel

Monday Afternoon, July 10, 1939

2:00 to 4:00 O'clock

President—Dr. T. L. Harris, Parkersburg.

Vice President—Dr. Randolph L. Anderson, Charleston.

Secretary—Dr. E. Bennette Henson, Charleston.

"Mechanical Causes for Non-Union of the Humerus, Tibia and Patella."

Dr. George E. Bennett, Johns Hopkins University, Baltimore, Maryland.

"The shoulder joint is more often affected by trauma and inflammatory lesions than any joint of the human body. Discussion will be confined to the treatment of various types of so-called bursitis of the shoulder."

Round Table Discussion.

Election of Officers.

SECTION ON INTERNAL MEDICINE

Auditorium, Greenbrier Hotel

Tuesday Afternoon, July 11, 1939

2:00 to 4:30 O'clock

Chairman—Dr. F. R. Whittlesey, Morgantown.

Secretary—Dr. James L. Wade, Parkersburg.

CHAIRMAN'S ANNUAL ADDRESS

"The Problem of Fever."

Dr. F. R. Whittlesey, Morgantown.

"A discussion of unexplained fever as a problem, the reasonable and easily performed tests that may be of value in diagnosis, with a few illustrative cases."

Discussion:

Dr. Oscar B. Biern, Huntington.

"The Nutritional Deficiency States Concerned With Clinical Cardiology."

Dr. William B. Porter, Richmond, Virginia.

"Review of the problem of deficiency states as they concern heart disease. Case records showing definite entities which have occurred on our service, and autopsy reports on typical cases which were manifestly due to complete avitaminosis probably of the B^1 fraction."

Discussion:

Dr. H. R. Sauder, Wheeling.

"Failure of the Peripheral Circulation."

Dr. D. C. Ashton, Beckley.

"Peripheral circulatory failure is still confused with cardiac failure although many investigations have been made on the subject in the past few years. A summary of the salient features of this type of circulatory insufficiency is given with accepted methods of treatment."

Discussion:

Dr. Hugh Bailey, Charleston.

WEST VIRGINIA OBSTETRICAL AND GYNECOLOGICAL SOCIETY

Ballroom, Greenbrier Hotel

Tuesday Afternoon, July 11, 1939

2:00 to 4:30 O'clock

President—Dr. W. W. Point, Charleston.

Secretary—Dr. Edwin J. Humphrey, Huntington.

PRESIDENT'S ANNUAL ADDRESS

"The Weight Curve in Pregnancy."

Dr. W. W. Point, Charleston.

"Recent Advances in the Diagnosis and Management of Placenta Prævia."

Dr. Thaddeus L. Montgomery, Philadelphia, Pennsylvania.

"Antepartum hemorrhage takes a heavy toll of both maternal and fetal participants in pregnancy. If an early diagnosis can be made of placenta prævia, the chances of preserving both lives are greatly increased. Special attention is directed to the methods of x-ray diagnosis of placental position and an assay of their value is presented."

Discussion:

Dr. A. Morgan Dearman, Parkersburg.

"Home Obstetrics."

Dr. Harry E. Beard, Huntington.

Discussion:

Dr. E. W. McCawley, Rainelle.

"Immediate Cervical and Perineal Repairs."

Dr. E. Newton DuPuy, Beckley.

Discussion:

Dr. Gilbert A. Ratcliff, Huntington.

"Obstetrical Forceps."

Dr. Carl S. Bickel, Wheeling.

Discussion:

Dr. Wilbur E. Hoffman, Charleston.

SECTION ON SURGERY

Auditorium, Greenbrier Hotel

Wednesday Afternoon, July 12, 1939

2:00 to 4:30 O'clock

Chairman—Dr. Robert J. Reed, Wheeling.

Secretary—Dr. B. S. Brake, Clarksburg.

"Traumatic Rupture of the Spleen."

Dr. Thomas L. Harris, Parkersburg.

"Rupture of the spleen due to trauma, while not a frequent accident, happens more often than one realizes. It is a surgical emergency and requires certain diagnostic skill with judgment in its management. The author will discuss diagnosis, surgical management, and report personal cases."

Discussion:

Dr. Robert K. Buford, Charleston.

"The Use of Continuous Suction in Surgical Treatment."

Dr. Chauncey B. Wright, Huntington.

"The intelligent use of suction in cases of intestinal obstruction demands ability to distinguish the type and location and the realization that its continuous use is deleterious to the body chemistry."

Discussion:

Dr. R. H. Walker, Charleston.

"Combined Abdominoperineal Resection."

Dr. Charles W. Mayo, Rochester, Minnesota.

"The one-stage combined abdominoperineal resection is an excellent operation in the properly selected case of carcinoma of the lower portion of the sigmoid, the rectosigmoid or rectum. It satisfies the radical principles necessary for a high percentage of cures. Only by careful selection, however, can the mortality be kept within reason and a true estimate of the value of the procedure be maintained."

Discussion:

Dr. H. H. Haynes, Clarksburg.

WEST VIRGINIA HEART ASSOCIATION

Ballroom, Greenbrier Hotel

Wednesday Afternoon, July 12, 1939

2:00 to 4:30 O'clock

President—Dr. R. J. Condry, Elkins.

Secretary—Dr. P. A. Tuckwiller, Charleston.

PRESIDENT'S ANNUAL ADDRESS

"Aortic Stenosis; A Review and Clinical Observation."

Dr. R. J. Condry, Elkins.

"The Use and Misuse of Terminology in Cardiac Disease."

Dr. James L. Wade, Parkersburg.

"The Medical Implications of Stab Wounds of the Heart and Great Vessels; Study of Twenty Cases."

Dr. William B. Porter, Richmond, Virginia.

"Stab wounds of the heart concerns everyone in the routine practice of medicine. The most available doctor is always the first to see the patient. Differential diagnosis with special emphasis on the mechanism of the symptom complex of cardiac tamponade. Electrocardiograms at different stages, following operations on the heart, to evaluate the significance of deviations from the normal. A restudy of twelve patients at varying periods, from one to five years, following operation and report is made of their present status."

COMMERCIAL EXHIBITORS

Coca Cola, Atlanta, Georgia.

Feick Brothers Company, Pittsburgh, Pa.

Fischer, H. G. and Company, Zanesville, Ohio.

Fleet, C. B. and Company, Lynchburg, Va.

General Electric X-ray Company, Cincinnati, Ohio.

Kelley-Koett Manufacturing Company, Covington, Kentucky.

Kloman Instrument Company, Charleston, West Virginia.

Lederle Laboratories, New York City.

Mead Johnson, Evansville, Indiana.

Mellin's Food, Boston.

Petrolagar Laboratories, Chicago.

Smith, Kline and French Laboratories, Philadelphia.

Van Pelt and Brown, Inc., Richmond, Virginia.

Westinghouse X-ray Company, Pittsburgh.

Wocher, Max & Son Company, Cincinnati.

Wyeth, John and Brother, Inc., Philadelphia.

GUESTS OF HONOR

Dr. George E. Bennett, Baltimore, Associate Professor of Orthopedic Surgery, Johns Hopkins University School of Medicine.

Dr. Donald L. Brace, New York, Professor of Anesthesia, New York Medical College.

Dr. James G. Bullowa, New York City, Clinical Professor of Medicine, New York University College of Medicine.

Dr. William T. Davis, Washington, Professor of Ophthalmology, George Washington University School of Medicine.

Dr. W. J. Engel, Cleveland Clinic, Foundation Hospital, Urologist.

Dr. Charles W. Mayo, Assistant Professor of Surgery, University of Minnesota, Graduate School of Medicine.

Dr. E. C. Mitchell, Memphis, Professor of Pediatrics, University of Tennessee, College of Medicine.

Dr. Thaddeus L. Montgomery, Philadelphia, Clinical Professor of Obstetrics, Jefferson Medical School.

Dr. William B. Porter, Richmond, Professor of Medicine, Medical College of Virginia.

HOUSE OF DELEGATES

Following is the list of duly elected county medical society delegates who have been certified to the office of the Association headquarters. These men, together with the officers, councillors and past presidents, will comprise the House of Delegates.

Barbour-Randolph-Tucker Society—Dr. W. G. Harper, Elkins; Dr. W. E. Whiteside, Parsons; Dr. Guy H. Michael, Belington.

Boone Society—Dr. R. L. Hunter, Madison.

Brooke Society—Dr. S. D. Steiner, Wellsburg.

Cabell Society—Dr. J. L. Hutchison, Huntington; Dr. Frank Barker, Huntington; Dr. Chauncey B. Wright, Huntington; Dr. Don Kessler, Huntington; Dr. Raymond Sloan, Huntington.

Central West Virginia—Dr. A. B. Bowyer, Buckhannon; Dr. M. T. Morrison, Sutton; Dr. L. W. Deeds, Buckhannon.

Doddridge Society—Dr. A. Poole, West Union.

Eastern Panhandle Society—Dr. M. H. Porterfield, Martinsburg.

Fayette County Society—Dr. Gilbert Daniel, Alloy; Dr. W. P. Bittinger, Summerlee; Dr. N. L. Cardey, Winona.

Greenbrier Valley—Dr. Robert E. Baer, White Sulphur Springs; Dr. A. G. Lanham, Ronceverte.

Hancock Society—Dr. Thomas H. Bruce, New Cumberland; Dr. A. B. Rinehart, Weirton.

Harrison Society—Dr. M. E. Farrell, Clarksburg; Dr. Frank V. Langfitt, Clarksburg; Dr. H. V. Thomas, Clarksburg; Dr. George F. Evans, Clarksburg.

Kanawha Society—Dr. A. Spates Brady, Jr., Charleston; Dr. B. H. Swint, Charleston; Dr. Russel Kessel, Charleston; Dr. Arthur Shawkey, Charleston; Dr. Thomas G. Reed, Charleston; Dr. A. E. Amick, Charleston; Dr. W. A. Thornhill, Jr., Charleston; Dr. P. A. Tuckwiller, Charleston.

Lewis County Society—Dr. R. O. Pletcher, Jane Lew; Dr. E. A. Trinkle, Weston.

Logan Society—Dr. J. L. Carney, Logan; Dr. E. H. Starcher, Earling; Dr. I. M. Kruger, Logan.

Marion Society—Dr. John P. Helmick, Fairmont; Dr. J. L. Blanton, Fairmont; Dr. C. T. Francis, Fairmont.

Marshall Society—Dr. J. A. Striebich, Moundsville; Dr. W. C. Boggs, Cameron; Dr. J. C. Peck, Moundsville.

Mason Society—Dr. J. L. Toupkin, Point Pleasant.

McDowell Society—Dr. O. B. Chapman, Dr. C. R. Hughes, Dr. James Vermillion, Welch.

Mercer Society—Dr. O. G. King, Bluefield; Dr. H. G. Steele, Bluefield; Dr. Frank Holroyd, Princeton.

Mingo Society—Dr. George W. Easley, Williamson; Dr. J. C. Lawson, Williamson.

Monongalia Society—Dr. Carl E. Johnson, Morgantown; Dr. C. C. Romine, Morgantown; Dr. F. R. Whittlesey, Morgantown.

Ohio Society—Dr. R. W. Lukens, Wheeling; Dr. R. B. Bailey, Wheeling; Dr. H. G. Little, Wheeling; Dr. Glenn McCoy, Elm Grove; Dr. Earl S. Phillips, Wheeling.

Parkersburg Academy—Dr. A. C. Woofter, Parkersburg; Dr. T. L. Harris, Parkersburg; Dr. J. L. Wade, Parkersburg; Dr. J. M. Depue, Spencer.

Potomac Valley—Dr. E. A. Courrier, Keyser; Dr. Thomas Bess, Keyser.

Preston Society—Dr. C. Y. Moser, Kingwood; Dr. A. V. Cadden, Hopemont; Dr. R. D. Harman, Kingwood.

Raleigh Society—Dr. E. N. Dupuy, Beckley; Dr. D. C. Ashton, Beckley; Dr. G. C. Hedrick, Jr., Beckley.

Summers Society—Dr. D. W. Ritter, Hinton.

Taylor Society—Dr. Harold Noble, Grafton.

Wetzel Society—Dr. E. C. Blum, New Martinsville; Dr. L. P. Stanley, Pine Grove; Dr. F. E. Martin, New Martinsville.

Wyoming Society—Dr. Ward Wylie, Mullens.

The duly elected alternates who will serve in the absence of their respective delegates are as follows:

Barbour-Randolph-Tucker—Dr. L. C. Magee, Elkins; Dr. Sam Weisman, Parsons; Dr. L. S. King, Philippi.

Cabell Society—Dr. A. K. Kessler, Huntington; Dr. W. F. Beckner, Huntington; Dr. Wes C. Thomas, Huntington; Dr. Beckett Martin, Huntington.

Central West Virginia—Dr. J. E. Echols, Richwood; Dr. J. N. Marquis, Richwood.

Fayette County Society—Dr. C. G. Hodges, Kilsythe; Dr. C. H. Englefried, Montgomery.

Greenbrier Valley—Dr. D. G. Preston, Lewisburg.

Harrison Society—Dr. J. E. Wilson, Clarksburg; Dr. C. O. Post, Clarksburg; Dr. L. E. Neal, Clarksburg.

Kanawha Society—Dr. Claude Smith, Charleston; Dr. W. P. Black, Charleston; Dr. Herbert Wise, Charleston; Dr. Peter Haley, Charleston; Dr. Francis Clark, Charleston; Dr. S. L. Bivens, Charleston; Dr. P. H. Revercomb, Charleston.

Lewis County Society—Dr. C. B. Rohr, Alum Bridge.

Marion Society—Dr. J. B. Clinton, Fairmont; Dr. E. B. Wise, Everettsville.

Mercer Society—Dr. R. O. Rogers, Bluefield; Dr. Wade St. Clair, Bluefield.

Mingo Society—Dr. R. F. Farley, Delbarton.

Monongalia Society—Dr. E. F. Heiskell, Morgantown; Dr. Brinley John, Morgantown.

Ohio Society—Dr. W. M. Sheppe, Wheeling; Dr. R. A. Tomassene, Wheeling; Dr. H. G. Weiler, Wheeling; Dr. A. L. Jones, Wheeling.

Preston Society—Dr. J. F. Lehman, Arthurdale; Dr. David Salkin, Hopemont.

Raleigh Society—Dr. Frank Harkleroad, Mabscott; Dr. C. A. Smith, Raleigh.

Wetzel Society—Dr. J. O. Theiss, New Martinsville.

GENERAL ANNOUNCEMENTS

All general scientific sessions of the Association will be held during the morning from 9:30 to 12:30 o'clock in the Auditorium of the Greenbrier.

There will be a meeting of the Council in the Virginia Room at 10:30 o'clock Monday morning, July 10.

The House of Delegates will meet in the Auditorium at 4:30 p. m. on Monday afternoon, July 10, and again on Tuesday evening, immediately following the President's Address.

The annual convention golf tournament will be in charge of Dr. Robert E. Baer of White Sulphur Springs. Members will be required to bring their club handicaps certified by their club professionals. Trophies and awards will be made at the convention banquet Wednesday evening.

A tennis tournament for Association members will be instituted at White Sulphur Springs and all members who are interested are requested to com-

municate with Dr. P. A. Tuckwiller, Medical Arts Building, Charleston, for details.

The convention banquet and dance will be held on Wednesday evening and no extra charge will be made for those registered at the hotel. Tickets will be available at $2.50 each for those not registered.

All members of the Association, with wives and guests are requested to register immediately upon arrival. The registration desk will be in the exhibit hall. There is no registration fee.

SPECIAL LUNCHEONS

Luncheon meetings of special groups of the Association have been arranged by the following chairmen:

Monday noon, one o'clock, July 10.

Alumni, Medical College of Virginia, Room D.

Alumni, Jefferson Medical College, Room B, Dr. J. G. Ralston, Clarksburg.

Army and Navy Reserve Officers, Room C, Dr. W. M. Sheppe, Wheeling.

Orthopedic Staff Meeting, Room A, Dr. D. L. Butterfield, Department of Public Assistance, Charleston.

Tuesday noon, one o'clock, July 11.

American College of Physicians, Room D, Dr. P. A. Tuckwiller, Medical Arts Building, Charleston.

Syphilis Committee, Room A, Dr. W. M. Sheppe, Wheeling.

Wednesday noon, one o'clock, July 12.

Alpha Kappa Kappa, Room D, Dr. W. A. Thornhill, Medical Arts Building, Charleston.

Phi Beta Pi, Rooms A and B, Dr. J. L. Patterson, Holden.

Members who are interested in any of the above listed luncheons are requested to get in touch with the chairman.

ADDITIONAL ANNOUNCEMENTS

Shortly after the foregoing convention program went to press, the committee received an acceptance from Dr. Nathan B. Van Etten of New York, president-elect of the American Medical Association, to make the banquet address on Wednesday evening, July 12. Dr. Van Etten is a former speaker of the AMA House of Delegates and is a gifted talker. He will no doubt discuss some of the national problems confronting the medical profession today.

. . . PROGRAM . . .

Fifteenth Annual Meeting

WOMAN'S AUXILIARY WEST VIRGINIA STATE MEDICAL ASSOCIATION

HEADQUARTERS—THE GREENBRIER

WHITE SULPHUR SPRINGS, JULY 10, 11, 12, 1939

MONDAY

2 O'clock

Registration.....Fifty cents

4 O'clock

EXECUTIVE BOARD MEETING

Room 177

Presiding.....Mrs. Frank S. Harkleroad

Monday Evening—Movies

TUESDAY, JULY 11, 1939

9 O'clock, Virginian Room, The Greenbrier

FORMAL OPENING OF CONVENTION

Presiding.....Mrs. Frank S. Harkleroad

Invocation.....Rev. R. D. Roller

Address of Welcome.....J. G. Leech
President, Greenbrier Valley Medical Society.

Response.....Mrs. Phillip Johnson, Fairmont

Introduction of Convention Chairman—Mrs. J. J. Brandabur, Huntington; Mrs. W. V. Wilkerson, Prenter.

First Report of Credentials Committee—Mrs. R. H. Walker, Charleston.

"In Memoriam"—Mrs. Ralph Hogshead, Montgomery.

MINUTES OF FOURTEENTH ANNUAL MEETING

ROLL CALL.

REPORTS AND RECOMMENDATIONS.

Recording Secretary.....Mrs. H. V. Thomas, Clarksburg.

Corresponding Secretary.....Mrs. Geo. Fordham

Treasurer.....Mrs. B. B. Nicholson

Auditor.....Read by Recording Secretary

STANDING COMMITTEES (Four Minutes)

Archives.....Mrs. Russel Kessel

Exhibits...Mrs. H. P. Evans, Mrs. Paul Spangler

Historian.....Mrs. Russel C. Bond

Hygeia.....Mrs. G. A. Ratcliffe

Legislation.....Mrs. R. H. Walker
Parliamentarian.....Mrs. Phillip Johnson
Press and Publicity.....Mrs. H. E. Beard
Program.....Mrs. W. V. Wilkerson
Public Relations.....Mrs. H. F. Troutman
Research and Romance...Mrs. A. G. Rutherford
Speakers Bureau.....Mrs. S. M. Prunty
Revisions. Mrs. A. H. Stevens, Mrs. E. B. Wright

PRESIDENT'S REPORT

ANNOUNCEMENTS:

BUDGET COMMITTEE

RESOLUTIONS COMMITTEE

TUESDAY AFTERNOON

Terrace Dining Room

Luncheon.....12:30 O'clock
Presiding.....Mrs. Frank S. Harkleroad
Address—"Our Auxiliary", Mrs. David W. Thomas, Lock Haven, Pa.
Introduced by Mrs. V. E. Holcombe, A. M. A., President-elect.
Guests—Dr. Ray Bobbitt, President West Virginia State Medical Association; James S. Klumpp, M. D., Huntington; D. C. Ashton, M. D., Beckley; Phillip Johnson, M. D., Fairmont; Mr. Joe W. Savage, Executive Secretary; Dr. James R. Bloss; Mrs. E. H. Starcher, Omar; Mrs. A. H. Stevens, Fairmont.
Exhibit Tea. Mrs. H. P. Evans, Mrs. Paul Spangler
"Nesting Time", presented by Grace Yoke White, Poet Laureate of West Virginia.

WEDNESDAY, JULY 12, 1939

8:30 O'clock

PAST PRESIDENT'S BREAKFAST—ROOM D.
Hostesses—Mrs. S. S. Hall, Mrs. E. H. Starcher, Mrs. Walter Swann.

GENERAL MEETING

10 O'clock—Virginian Room

Presiding.....Mrs. Frank S. Harkleroad
Invocation.....
MINUTES.
Second Report of Committee on Credentials and Registration.....Mrs. R. H. Walker
ROLL CALL OF DELEGATES.
TREASURER'S REPORT.
Presentation of Budget.
Four Minute Talks "Highlights" by County Presidents.
Auxiliary Credit Presentation.
Report of Nominating Committee: Mrs. S. S. Hall, Chairman.
Election of Officers.
Installation of Officers.
Courtesy Resolutions.
Minutes.

WEDNESDAY AFTERNOON

Casino

Luncheon.....One O'clock
Presiding.....Mrs. Frank S. Harkleroad
Guest Speakers—Dr. Nathan B. Van Etten, New York, President-elect, American Medical Association.
"West Virginia's First Woman Doctor," Article contributed by Mrs. Frank S. Harkleroad. Read by Mrs. B. H. Swint.
Presentation of Mrs. V. E. Holcombe, President for 1939-1940.
Address.....Mrs. V. E. Holcombe, A. M. A. President-elect.
ADJOURNMENT.

POST CONVENTION BOARD MEETING

(Time and Place to be Announced)

Presiding.....Mrs. V. E. Holcombe

WEDNESDAY EVENING, JULY 12, 1939

Annual Convention Dinner and Dance

ADVISORY BOARD

James S. Klumpp, M. D.....Huntington
D. C. Ashton, M. D.....Beckley
Philip Johnson, M. D.....Fairmont
Mrs. E. H. Starcher.....Omar
Mrs. A. H. Stevens.....Fairmont

CONVENTION COMMITTEES

General Chairmen—Mrs. J. J. Brandabur, Mrs. W. V. Wilkerson.
Credentials and Registration—Mrs. R. H. Walker, Mrs. J. E. McKenzie.
Exhibits..Mrs. H. P. Evans, Mrs. Paul Spangler
Finance.....Mrs. B. B. Nicholson
Hospitality.....Mrs. A. G. Rutherford
Inter-County.....Mrs. E. W. Wise

OFFICERS

President.....Mrs. F. S. Harkleroad
President-elect.....Mrs. V. E. Holcombe
First Vice President.....Mrs. James S. Klumpp
Second Vice President.....Mrs. H. P. Evans
Third Vice President.....Mrs. E. W. Wise
Recording Secretary.....Mrs. H. V. Thomas
Corresponding Secretary.....Mrs. Geo. Fordham
Treasurer.....Mrs. Berlin B. Nicholson

COUNTY PRESIDENTS
1938-1939

Mrs. W. V. Wilkerson.....Boone County
Mrs. E. J. Humphrey.....Cabell County
Mrs. Ralph Hogshead.....Fayette County
Mrs. W. T. Gocket.....Harrison County
Mrs. A. A. Wilson.....Kanawha County
Mrs. D. S. Hess.....Logan County
Mrs. H. P. Helmick.....Marion County
Mrs. Paul Spangler.....McDowell County
Mrs. Ivan Fawcett.....Ohio County
Mrs. E. S. Dupuy.....Raleigh County
Mrs. Ray D. Lattimer.....Wood County

PAST PRESIDENTS

Mrs. A. G. Rutherford.....Nolan
Mrs. B. S. Preston.....Charleston
Mrs. R. V. Shanklin.....Gary
Mrs. J. P. Lilly.....Charleston
Mrs. Walter C. Swann.....Huntington
Mrs. S. S. Hall.....Clarksburg
Mrs. Howard T. Phillips.....Wheeling
Mrs. Frank V. Langfitt.....Clarksburg
Mrs. M. F. Peterson.....Charleston
Mrs. S. M. Prunty.....Parkersburg
Mrs. A. H. Stevens.....Fairmont
Mrs. E. H. Starcher.....Omar

PRAYER

Dear Lord, my good thoughts, words and deeds
I offer up this day to Thee;
And ask that Thou'lt apply them all
To those poor souls that look to me,
Thou knowest, Lord, the gift I crave:
That soon in heaven Thy face they'll see.

This be my prayer today, dear Lord,
That I may gain in grace until
My every phase of living turns
Upon the thought to serve Thy will
So that tonight my heart can say
I climbed a bit up heaven's hill.

General News

GOLDEN CLINIC DAY

The annual symposium of the Golden Clinic will be held at Elkins on Saturday, August 12, from 9:30 a. m. to 10 o'clock p. m., it has just been announced by Dr. B. I. Golden, who has issued a cordial invitation to the profession in West Virginia to attend. Further announcements will be mailed out later, Dr. Golden said.

Speakers who will appear on the symposium, and the subjects they will discuss, follow: Dr. Robert H. Kennedy, New York, Fractures and Traumatic Surgery; Dr. David Scherf, Vienna, Endocrinology and Heart Disease; Dr. Earl B. Craig, Philadelphia, Gynecology; Dr. James F. McCahey, Philadelphia, Urology, Special Reference to Hypogonadism, and Dr. L. G. Bienhauer, Pittsburgh, Syphilology.

The West Virginia Heart Association will hold a luncheon at noon with Dr. R. J. Condry, president. Dr. Scherf will be the principal speaker. Dr. Condry has requested that members who desire to ask questions on cardiology, please send in such questions in advance.

The symposium will close with an evening banquet with Dr. Oscar B. Biern, Huntington, as toastmaster. Dr. Ray M. Bobbitt, Huntington, Association president, will represent the Association in an address, and Dr. Earl B. Craig will speak on "Gynecological Problems."

REGISTERING HOSPITAL BIRTHS

The United States Bureau of the Census made a recent comparison of the number of births in each state occurring in hospitals of all types and the number reported by the medical profession as occurring in approved hospitals. This revealed that in West Virginia and one other state among the southeastern group, there are more births reported by the profession than there are recorded as occurring in hospitals of all kinds. In one county having two hospitals only two births were reported as occurring in hospitals during the month checked.

As there seems no reason to doubt the accuracy of the figures of either the medical profession or the Bureau of the Census, there is ground for serious thought as to the reason for this apparent failure to register numerous births.

While there may be many reasons for this discrepancy, only two alternatives seem more or less obvious. Either physicians are depending on the hospital office to register the births and the office depending on the physician and as a result the births are actually not being registered, or the births are registered and the fact that they occurred in hospitals is being omitted.

It would seem especially important at this time when some persons are raising the question as to the adequacy of medical care that the physicians in hospitals see to it that the births attended by them are correctly registered.

Obituaries

DOCTOR SAMUEL W. PRICE

Dr. Samuel W. Price of Scarbro, prominent Fayette county industrial physician and a member of the West Virginia Public Health Council, died at his home on June 1 at the age of 69 years. He had been in ill health for about one year prior to his death.

Dr. Price was an honorary member of the West Virginia State Medical Association and a former president of the Fayette County Medical Society. He was graduated from the University College of Medicine, Richmond, in 1896, received his West Virginia license the same year, and was engaged in active practice in the state for more than 40 years.

DOCTOR BENJAMIN S. PARKS

Dr. Benjamin S. Parks of Parkersburg, West Virginia died suddenly on May 19, 1939. He was born on October 17, 1882 and graduated from Barnes Medical College in 1906. He received West Virginia license No. 3358 in 1906. His specialty was internal medicine and he practiced in Spencer as well as Parkersburg. He did Chemical Warfare Service in the United States Army in 1918 and 1919. He had been a member of the West Virginia State Medical Association for twenty years prior to his demise.

Early discovery of infection is a game of wits. The tubercle is relentless but without wit. The human race has wit but is indolent. Add to our wit a touch of the relentlessness of our enemy and he has no chance of survival.—Emerson, K., Jour.-Lancet, 1939, 59.

The Relay Sanitarium

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RELAY, MARYLAND

A private sanitarium for the care and treatment of nervous and mild mental disorders. Selected cases of alcoholism and drug addiction. Fifty-four acres conveniently located near Baltimore and Ohio Railroad and Baltimore - Washington Boulevard. Homelike atmosphere; outdoor exercise and recreation.

Well equipped to treat physical disease with mental manifestations.

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Medical Director

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Clinical Laboratory Service

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DR. ALBERT FALLER, Founder

DR. DOUGLAS GOLDMAN, Director

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605 Provident Bank Bldg. Cincinnati, Ohio

County Society News

BARBOUR-RANDOLPH-TUCKER

The regular meeting of the Barbour-Randolph-Tucker County Medical Society was held at the Tygart Hotel, Elkins, on the evening of May 11, 1939 with a good attendance. Dr. E. S. Brewster and Dr. Fritz Levi were elected to membership and the applications of Dr. J. E. Martin and Dr. Edwin J. Euphrat were referred to the Board of Censors.

Other business considered by the society included the appointment of a special committee to investigate the possibility of organizing a Woman's Auxiliary in the tri-county district, and the election of Dr. W. G. Harper, Dr. W. E. Whiteside and Dr. Guy Michael as delegates to the State meeting. Dr. L. C. McGee, Dr. Sam Weisman and Dr. L. S. King were elected as alternates. There was also a general discussion of the insurance resolution presented by the Association Low Cost Study Committee.

The scientific program was presented by Dr. McGee, Dr. L. U. Lumpkin and Dr. E. J. Euphrat. Dr. McGee gave a very interesting talk on "Physiology of the Gall-Bladder." Dr. Lumpkin presented some very interesting and informative ideas on "Surgery of the Gall-Bladder." Dr. Euphrat showed some excellent x-ray pictures visualizing the gall-bladder.

GUY H. MICHAEL, *Secretary.*

EASTERN PANHANDLE

Dr. Ray M. Bobbitt, Huntington, president of the State Association, was the guest speaker of the Eastern Panhandle Medical Society at a noon meeting at Charles Town on June 21. He spoke on economic conditions in West Virginia relating to the practice of medicine and extended a cordial invitation to all members to attend the State Convention at White Sulphur Springs in July. There was a good attendance and Dr. Bobbitt's talk was preceded by a luncheon.

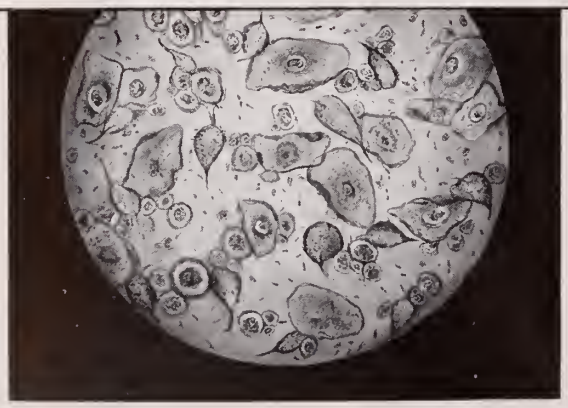
M. H. PORTERFIELD, *Secretary.*

HARRISON COUNTY

A special meeting of the Harrison County Medical Society was held at the Stonewall Jackson

TRICHOMONADS IN THE VAGINAL SMEAR

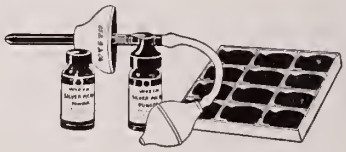
SILVER PICRATE *Wyeth*



IN THE OFFICE TREATMENT FOR TRICHOMONAS VAGINITIS

Two insufflations of Wyeth's Compound Silver Picrate Powder and the supplementary use of twelve Silver Picrate Vaginal Suppositories usually result in complete remission of symptoms of trichomonas vaginitis and the disappearance of trichomonads from the smear.

CONVENIENT • SIMPLE • EFFECTIVE



Complete information on request

JOHN WYETH & BROTHER, INC. • PHILADELPHIA, PA. . . . WALKERVILLE, ONT.

Hotel, Clarksburg, on the evening of June 22 for the purpose of hearing the Association President, Dr. Ray M. Bobbitt of Huntington. Dr. Bobbitt gave an excellent talk on the problems confronting the profession in West Virginia and urged all members to attend the state meeting at White Sulphur Springs in July. There was a good attendance.

M. E. FERRELL, *Secretary.*

KANAWHA COUNTY

A special meeting of the Kanawha Medical Society was held at the Daniel Boone Hotel, Charleston, on the evening of May 23 for the purpose of considering the Low Cost Study Committee resolution on medical insurance. After a thorough discussion, the society voted disapproval of the resolution but decided not to instruct its delegates when the matter is considered by the State Association.

A second special meeting of the society was held on the evening of June 2 with Dr. Gideon Timberlake, Professor Emeritus of Urology of the University of Maryland, Baltimore, as the guest speaker. His subject "Hematuria" was interesting and his talk well received.

The last regular meeting of the society, prior to the summer recess, was held on the evening of June 13 with Dr. Alexander J. Schaffer, Department of Pediatrics, Johns Hopkins University, as the guest speaker. Dr. Schaffer gave a most instructive paper on "The Management of Urinary Tract Infections in Infancy and Childhood."

A. SPATES BRADY, *Secretary.*

MARSHALL COUNTY

A special meeting of the Marshall County Medical Society was held at the Moundsville Elks Club on June 13 for the purpose of transacting the business of the society. One of the chief matters under consideration was a discussion of the society sponsoring the course of postgraduate lectures on obstetrics and pediatrics offered by the State Association.

J. A. STREIBICH, *Secretary.*

MONONGALIA COUNTY

Dr. M. L. Bonar of Charleston was the guest speaker of the Monongalia County Medical Society, which was held at the Hotel Morgan, Morgantown, on Tuesday evening, June 6. Dr. Bonar's

DOCTORS

When you think of office and medical supplies, surgical instruments, trusses, etc., think of the Kloman Instrument Company—a great store in a great State.

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Kloman Instrument Company

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STRICTLY PRIVATE. ABSOLUTELY ETHICAL.
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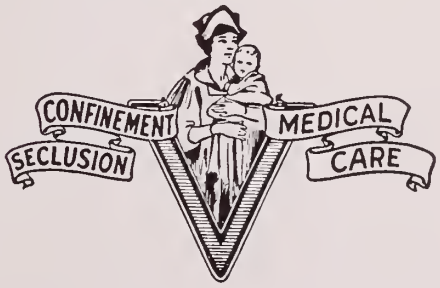
EARLY ENTRANCE ADVISABLE.



Adoption of babies when arranged for. Rates reasonable. Located on the Delaware Division of Penna. R. R., twenty-five miles south of Wilmington, Delaware. Write for booklet.

THE VEIL

BOX 204, MIDDLETOWN, DELAWARE

subject was "Skin Diseases Due to Civilization." The program was preceded by a six o'clock dinner at the hotel.

A special meeting of the society was held on the evening of June 20 at the Hotel Morgan, at which time Dr. Ray M. Bobbitt of Huntington, Association president, was the guest speaker. Dr. Bobbitt discussed the problems of medical economics in West Virginia.

CARL F. JOHNSON, *Secretary*.

POTOMAC VALLEY

The quarterly meeting of the Potomac Valley Medical Society was held at the New Century Hotel at Romney on the evening of June 21 with Dr. Ray M. Bobbitt of Huntington, State Association president, as the guest speaker. Dr. Bobbitt spoke on the subject of medical economics in West Virginia and outlined the problems facing the profession in the state. Members of the Allegheny County Medical Society in Maryland were special guests at this meeting.

E. A. COURRIER, *Secretary*.

RALEIGH COUNTY

The annual "Pinecrest" meeting of the Raleigh County Medical Society was held at Pinecrest Sanitarium on the afternoon and evening of June 15 with an excellent attendance of members and guests. The sanitarium was open for general inspection from one until five o'clock and dinner was served at 5:30 o'clock.

The scientific program was presented by Dr. J. Winthrop Peabody of Washington, Superintendent of the Glenn Dale Sanitorium at Glenn Dale, Maryland.

E. N. DUPUY, *Secretary*.

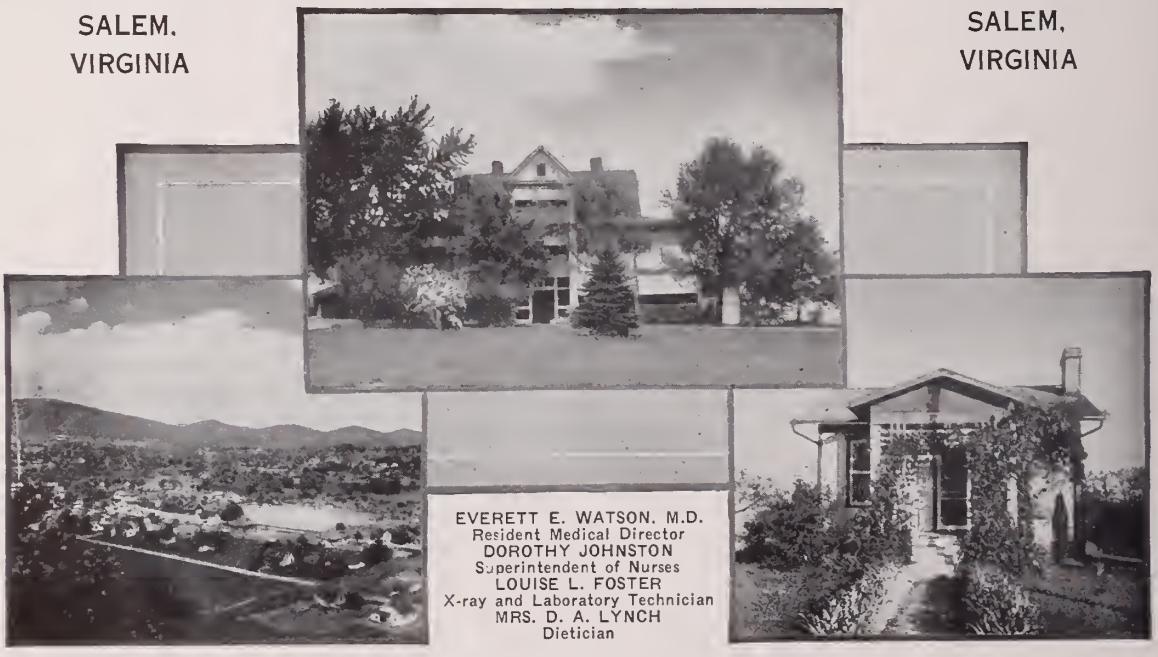
MINGO COUNTY

The regular meeting of the Mingo County Medical Society was held June 7, 1939. The general discussion on the feasibility of organizing the ladies' auxiliary was discussed pro and con. On motion of Dr. Lawson, it was carried that the secretary contact the state organization and request that the organization be established here. After general discussion, it was moved by Dr. Irvine and

MOUNT REGIS SANATORIUM

SALEM, VIRGINIA

SALEM, VIRGINIA



EVERETT E. WATSON, M.D.
Resident Medical Director
DOROTHY JOHNSTON
Superintendent of Nurses
LOUISE L. FOSTER
X-ray and Laboratory Technician
MRS. D. A. LYNCH
Dietician

MODERATE RATES. WRITE FOR INFORMATION

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Caters to convalescents or anyone desiring a rest in the mountains under ideal hygienic and climatic conditions. Physician and nurses in constant attendance. Private and semi-private cottages.

unanimously carried that we inform the State Medical Association of our desire to have a post graduate clinic in Williamson this coming summer.

A general discussion of the low cost plan of medical care was discussed by all present. Dr. J. C. Lawson was elected as delegate to the state meeting and Dr. R. F. Farley was elected as alternate.

After a discussion as to the price to be charged for premarriage examination, it was moved by Dr. Hays that the price be fixed at $5.00. The motion carried unanimously.

MATERNAL DEATHS

Recent maternal mortality statistics indicate that the intensive efforts by physicians, various government health agencies and numerous lay groups to reduce such deaths in the United States are beginning to show their effects, Edwin F. Daily, M.D., Washington, D. C., states in *The Journal of the American Medical Association* for June 10.

"Official statistics of the Bureau of the Census for the year 1937," he continues, "give a maternal mortality rate of 49 per 10,000 live births. This rate is 14 per cent lower than the rate for 1936 (57), which was the previous low rate for the United States. If the maternal mortality rate for 1937 had remained the same as in 1936 there would have been 1,746 more maternal deaths in 1937 than actually occurred.

"This decrease in maternal mortality in 1937 is especially significant, since the death rate among women of child-bearing ages (from 15 to 49 years of age) from all other causes decreased by only four per cent. The birth rate in 1937 (17.0) was higher than the birth rate for 1936 (16.7)."

The only recent scientific discovery which aids the obstetrician is sulfanilamide. This drug in the future will be likely to save many lives from certain types of child-bed fever, but its use in 1937 for the treatment of this fever was not widespread in the United States.

Of the 14,296 deaths in 1935 certified as being associated with pregnancy and childbirth, 87.7 per cent were classified as directly due to child-bed fever. The remainder included deaths due to criminal abortion and tuberculosis, diabetes, chronic infection of the kidneys and syphilis. These latter diseases might or might not have proved fatal if the women had not become pregnant.

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DAVIS MEMORIAL HOSPITAL

ELKINS, WEST VIRGINIA

Public Health

The material in this monthly column is compiled and furnished by the West Virginia State Health Department

IMMUNIZATION TEST CASE

The first test case of the West Virginia Immunization Law was held in the circuit court of Wetzel county at New Martinsville on May 17, 1939. Theodore Hoskins of Steelton, Wetzel county, was found guilty for refusing to permit his child to be immunized against diphtheria and smallpox. Several cases in other parts of the State have been taken before justices but in each instance they have had their children immunized before their cases were held over for the circuit court.

There is evidence that the physicians are immunizing more and more children and these children are being immunized earlier in life when the need is greatest. The "greeting" folder urging early immunizations against diphtheria which is being sent out with birth certificates should play an important part in educating parents to take their children to their family physician for immunizations. Physicians should endeavor to educate all the families who are under their care on the importance of bringing the children into their office for their immunizations. Local health departments will cooperate in immunizing all cases referred to them for immunization by physicians. All must accept their responsibility in getting these immunizations done which means the practicing physician,

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the local health department and the parents. When parents are sufficiently educated to the necessity of having their children immunized, they will see that this is done.—T. W. NALE, M. D.

SEROLOGICAL LABORATORIES

On May 24, in connection with the recently enacted West Virginia statute relative to premarital examination for syphilis, the West Virginia State Health Department sent to all licensed physicians and medical societies in the state a list of laboratories approved at that time by the West Virginia Health Department for performance of tests for syphilis. It has been impossible, because of the extremely short time period allowed between the passage and the enforcement dates of the law, to approve, or even inspect, all the laboratories that have applied for approval. Therefore, since it was obvious that all applying laboratories could not be approved by May 26, it was considered necessary to choose first for inspection and testing a few laboratories located as widely as possible throughout the state, so that each section of the state would have available immediately the service of at least one approved laboratory in or near its area.

The State Health Department desires to cooperate to its fullest ability with all laboratories in the state requesting approval; however, only a limited number can be tested at one time, since the requirements for approval include not only the appraisal of questionnaires submitted, but personal inspection of the applying laboratory to determine whether or not apparatus used is adequate and accurate, and also whether technique used is in strict accord with methods at present recommended by the originators of the standard syphilis serological tests. Laboratories throughout the state are being sent a series of fifty or more specimens, taken from clinically and serologically known syphilitic cases and from known normal persons, for examination in parallel with two control laboratories. Following examination of the "unknown" test specimens (collected from syphilitic and non-syphilitic donors), the laboratories obtaining the most accurate results will be inspected. The State Health Department feels and hopes that the sending of test specimens before inspection of laboratories will speed up the approval of those laboratories throughout the state which are at present obtaining accurate serological results.

The examination of the "test specimen" series has already revealed that some laboratories in the

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state are reporting a high percentage of positive serological results on known normal persons, and in some cases are reporting an unfortunately high percentage of negative results on known positive serum specimens!

By inspecting laboratories, the State Health Department is enabled to aid them in determining the causes of laboratory error; such errors result most often from inaccurate apparatus or inaccurate technique.

PREMARITAL CERTIFICATES

With regard to the premarital certificates required by the county clerks in connection with this law, the State Health Department furnishes these forms to each approved laboratory (a large supply accompanying the certificate of approval, subsequent supplies being sent on request). Therefore, it will not be necessary for the physician to have a supply of these forms on hand, since the examining laboratory is required to forward these forms, with questions pertaining to the laboratory examination filled in to the physician together with its report of the blood examination.

WITH OUR ADVERTISERS

PARKE DAVIS AND COMPANY

On July 4, 1938, Parke Davis and Company began an educational advertising campaign in the *Saturday Evening Post* and other leading magazines with the slogan "See Your Doctor." This month marks the eleventh anniversary of this program, which has been of unusual service to the medical profession.

The home office of Parke Davis and Company at Detroit will welcome comments or suggestions from the medical profession relative to their educational advertising campaign. They would like to know if the profession considers their campaign worthwhile, and if it should be continued.

Regarding the professional advertisement in this issue, the company announces the addition of adrenalin in oil to their catalog. Each cubic centimeter of adrenalin in oil contains two milligrams of adrenalin in peanut oil. The resultant slow absorption causes a typical effect being maintained for as long as nine to sixteen hours. Adrenalin in oil is supplied in one cc. ampoules, boxes of 12 and 25.

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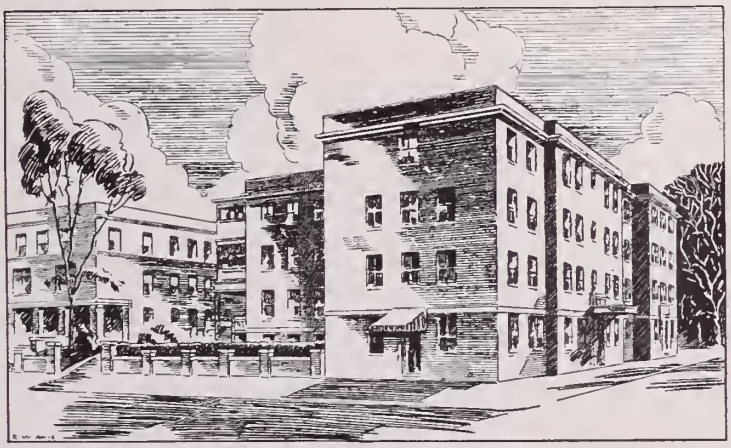

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ACHIEVEMENTS AND RESPONSIBILITIES OF OUR STATE ASSOCIATION *

By RAY M. BOBBITT, M. D.
Huntington, West Virginia

ALTHOUGH having served two terms on the Council and in other committee work, I did not realize the vast number of activities carried on by our Association until I became its presiding officer. Because of this fact, and in view of personal conferences with many members who also did not understand the scope of duties and responsibilities, I shall give you now a brief review of this work and the responsibility of work to come. This report is not an eulogy but a statement of facts which will bring out both failure and success, through which, however, I hope there will be a binding of our membership into a more closely knit organization. Only by such an understanding and close union, may the greatest good be accomplished.

During the past twelve years the membership has increased from nine hundred and sixty-six to almost thirteen hundred, and the convention attendance has increased from two hundred and eighty to more than five hundred. The various and constantly increasing expansion of our Association has necessitated the formation of many new standing and temporary committees, the members of which almost to a man have served faithfully and loyally.

Advancement in scientific work has kept well astride of medical progress and accomplishments. Doctors of national reputation and excellent teachers have favored us by presenting their work, while our own state men have given us the value of their scientific experience. Postgraduate work in obstetrics and pediatrics has been worked out by our joint committees with our State Health Department and now we are bringing

THE AUTHOR

Dr. Ray M. Bobbitt, Huntington; President, West Virginia State Medical Association; graduate University of Maryland; interned Sheltering Arms Hospital; postgraduate Mercy and Johns Hopkins Hospitals; Fellow, American College of Surgeons; American Urological Association; certified by American Board of Urology.

*President's Annual Address presented to the West Virginia State Medical Association at White Sulphur Springs, July 11, 1939.

excellent modern teaching directly to the members of the profession, particularly of the rural communities. More than five hundred have attended these conferences in the past three years. However, this attendance has been too low and unfortunately the ones who need the teaching most are the ones who fail to attend. As a rule the doctors who do attend are the better trained ones who feel the need of further education.

POSTGRADUATE WORK

Too much emphasis cannot be placed on this work and one of our chief responsibilities is to sponsor further, through education, advertisement, and even insistence, more postgraduate work among our physicians. No longer can a physician sit back after receiving his degree and license to practice, and then refuse to make any effort to keep up with modern methods and newer proven teachings. I believe that before long, license to practice will not be a lifetime franchise, but every doctor will be required to keep himself qualified, thereby assuring to all our patients the best that unequaled American medicine has to offer. I would like to suggest that a State Committee to promote postgraduate education probably would be of great value in meeting this responsibility and a great aid to the members.

THE WEST VIRGINIA MEDICAL JOURNAL represents one of the outstanding activities of our Association. A state journal constitutes one of the chief contacts of the state profession with the members of the profession elsewhere. Certainly a state association is judged largely by the type of publication it issues.

Our journal has achieved rather wide recognition and has been quoted frequently by other state and national medical publications. A number of our articles have been abstracted by the *Journal of the American Medical Association.*

Incidentally, the JOURNAL is a moneymaker for the State Association. During the last twelve years it has made a profit every year, totaling for that period a net profit of over $14,000, an excellent showing when the general economic condition of the country during that period is considered. This profit has been needed at times in defraying expenses not directly applicable to the JOURNAL and has helped us in other economic difficulties.

Much fine scientific work is being done by many of our hospitals and I should like to suggest that the staffs of these hospitals be encouraged to compile this work, especially case histories, and publish it in our journal for the benefit of us all.

Our legal accomplishments are ones of which we should well be proud. Over a 12-year period, no legislation of any kind, opposed by the Association or inimical to its interests or those of the public entrusted to our care has been enacted into law. A few members to my knowledge feel that they do not get value received for their state dues. The amended Compensation Act alone, fought to a successful enactment in 1935, brought a $188,000 increase in professional fees the first year. During the special session of the legislature in 1936, $125,000 per year was set up for adult physical rehabilitation, about $60,000 of which is paid for medical service. Time is too short to cover all the legal activities, but a few of them deserve mentioning. We obtained a ruling from the Supreme Court that the fact of malpractice could not be established by lay witnesses, thereby averting a vast increase in malpractice suits and malpractice insurance rates. The Cabell County Medical Society brought an injunction against an unlicensed cultist on the grounds that a license to practice medicine is a property right. With the help of the State Association this injunction was granted by the State Supreme Court. The American Medical Association felt that this was one of the greatest legal victories ever achieved by organized medicine in this country. Suits to enjoin corporations, both industrial and hospital, from practicing medicine without a license have been successful, thereby improving the practice of medical service.

An injunction was obtained by Monongalia County and the State Association restraining the City of Morgantown from levying a professional income tax on the professional men, which probably would have been adopted by many other cities needing funds had it not been stopped there. An effort was made in 1939 to enact a bill in the legislature to legalize a municipal professional income tax, but this bill was defeated, largely through Association efforts. The Medical Prefix Bill passed by the legislature in 1938 should effectively curb the attempts of all cultists who attempt to pass themselves off as regular doctors. By requiring that any individual who uses the name of "doctor" in any public display whatsoever, to designate by letters or words just what degree he holds, shows the public clearly whether they are dealing with a doctor of medicine, an osteopath, chiropractor or some form of cultist. The medical profession should be most careful to carry out the letter of the law, as it affords them much needed protection. Tax exemption for charity work of hospitals passed in 1931 is still utilized in some counties.

QUACKERY

Through the combined efforts of county and state associations the problem of quackery has been held down to a minimum and our state stands well at the top in the small number of irregular practitioners. The problem of foreign doctors was first raised at the conference of our county secretaries in January, 1936, and placed before the Public Health Council who passed a regulation in 1938 providing that no applicant could be licensed in this state without full American citizenship. So it can readily be seen that although we have been successful in the past, the State Association has a vast responsibility in opposing legislation detrimental not only to the medical profession, but the public as well. This responsibility may not be limited to our own state for we might easily be needed in a national crisis.

The relation of our Association to all branches and bureaus of state government has been a most happy one, and while all controversial points have not been settled, I feel that there is an excellent spirit of cooperation and much fine work has been accomplished. For some time we have been asked to advise regarding the qualifications for most of the medical appointees to our state institutions. Our Advisory Committee works with the State Compensation Department, Department of Public Assistance, Board of Control, Tax Commissioner and Health Department, and will furnish personal representation for any member at any time without cost. The old fee schedule for the indigent under the welfare act without medical guidance, has been more than doubled with the help of the Advisory Committee. This resulted in about $50,000 increase each year in medical income from this type of work.

COST OF MEDICAL CARE

For some time we have been forced to face some serious economic problems. The report of the Committee on Costs of Medical Care, the report of The Interdepartmental Committee, the fantastic survey of medical care by the Works Progress Administration workers and finally the indictment of The American Medical Association, has placed us in a defensive position. There is no doubt that the cost of medical care is too high for many in the low income group to pay, for the economic advance in America has not kept pace with medical progress. However, this is true of many commodities and compared with these other costs, medical care stands out particularly in value received. We cannot accept the recommendations of the Interdepartmental Committee as a whole, because we are sure it endangers American medicine, which is admittedly rendering the best service in the world today. The statement that one-third of our population does not have adequate medical care is in my opinion grossly exaggerated. I feel that the average American doctor need not be ashamed of his work during these periods of

depression and unemployment for they have carried on, often without pay, and at times with much sacrifice. The medical profession is supplying unrecompensed more than one million dollars a day in service.

CARE OF THE INDIGENT

However, I do believe that a serious problem exists among the indigent and low wage earning groups. Although, the principles set up by the Department of Public Assistance for its medical relief are mostly correct, the funds are inadequate and there is political domination in certain regional offices which is especially objectionable to the profession. Works Progress Administration workers certainly should be classified as medically indigent and some fund set up for their medical care. Much study is being given by the Association and its committees to this group and we feel that conditions should be improved. Most of the low income group cannot meet the cost of any catastrophic illness and either they do not get adequate medical care, or if they do, cannot pay the costs, and if they do try to meet these costs they are in serious financial difficulties for a long time. I personally feel that some form of prepayment insurance, voluntary or otherwise, for both hospital and medical care for this group may provide the best solution, but it is readily admitted that the practical application of this principle presents many difficulties. The Low Cost Study Committee has worked long and faithfully studying this problem, a report of their deliberations being in your hands. The solution of the entire problem is certainly not yet at hand, but I believe their final recommendations to be conservative and suggest further study by a medical service committee, hoping that sometime we might arrive at a universal agreement. No problem confronting our Association has caused more unhappiness among its members.

For many years the problem of contract practice in so-called non-competitive areas has caused dissension among our members; now individuals and groups have started prepayment insurance plans in competitive areas, thereby denying the patient the free choice of doctor and the doctor the opportunity of treating his own patients. Theoretically there is no difference whether this practice goes on in competitive or non-competitive areas, but practically in competitive areas the problem is much more acute. We have had many calls to try to remedy this situation and so far, like others before us, have not been able to solve it. Unless the hospital is a corporation practicing medicine, there is not any way to attack this practice from a legal standpoint, and because of the variations in different forms of contract practice, going on in different communities, the county societies have not seen fit to attack it from an ethical standpoint. I believe this to be the most serious problem confronting the Association today, because it involves dissension and unhappiness among our own members, which may conceivably keep us from presenting a united front against outside invasion. We will be forced to resort to all the talents, unselfishness and further study from all our profession, whether members of the state and county societies or not, before it is solved.

May I suggest the following recommendations for our future:

1. Promote in every way possible postgraduate instruction and scientific teaching for our members, and create a state committee to encourage and carry on this work.
2. Educate and encourage every member to be personally responsible in our legislative programs, both state and national.
3. Further study by a permanent medical service committee, the problem of indigent, medically indigent and low income groups.
4. Encourage county societies to take active interest in civic betterment programs, especially those pertaining to health and physical welfare.

Certainly an efficient full time executive secretary, who is constantly on the job to look after our interests and fight the battles of our members, has played an important rôle in our progress.

I cannot close before paying the highest tribute to the faithful workers who have served the Association so well. Without them these achievements would have been impossible. Many of them have already been recognized nationally and I feel proud of both the membership and achievements of the West Virginia State Medical Association.

DIAGNOSIS AND SURGERY OF THE TRAUMATIC ABDOMEN*

By NORRIS W. GILLETTE, A. B., M. D., F. A. C. S.
Toledo, Ohio

In the development of man the change in his manner of walking from the horizontal to the erect posture brought the abdomen into a vulnerable position. Nature has protected from trauma the only vital organs of four-footed animals which are uncovered by bone, by placing them where they are least apt to be injured by blows from hard objects or tearing from other animals. As men stood erect the unprotected abdomen assumed an importance in the violence of strife and accident which it did not formerly possess, due to the greater likelihood of lethal injuries to this part of the body by blows of lesser magnitude that might now cause death.

After an individual has been violently struck, the abdomen must be examined for an injury whether or not there is a history of direct abdominal force. Direct blows, glancing blows, injuries to the chest, severe falls without any direct abdominal injury, and injuries to the back have all been known to cause death from intra-abdominal hemorrhage, and tear of the viscera with slight or without any external evidence of trauma. In addition to these, penetrating wounds from gunshots and stab wounds add a danger to abdominal viscera.

Dunkin and Forbes in *Northwestern Medicine* reported that the non-penetrating abdominal injuries in King County Hospital from 1931-1937 damaged the following viscera: kidney, 11; liver, 10; bladder, four; intestines, three; spleen, 3; mesentery, one; intestines, three; spleen, three; mesentery, one; common duct, one, and combinations, 15; total, 48. Of these, 18 were operated upon with eight death and ten recoveries; 30 were not operated upon, with twenty deaths and ten recoveries.

It is interesting to note that of the kidneys injured, ten were not operated upon and lived and the one that was operated upon died. This shows that the retroperitoneal location of the kidney will allow control of the bleeding, with no susceptibility to peritonitis unless the peritoneum itself is ruptured, which is unlikely. It is also interesting to note that five non-operated ruptured livers caused death whereas of the five ruptured livers that were operated upon four lived. There were fifteen combination injuries of which three were operated upon and only one recovered. From these statistics and from others that substantiate them it is evident that the kidney and liver are more frequently injured by non-penetrating blows.

Dean Lewis and Trimble report a series of one hundred and forty cases only ninety-five of which were analyzed. Of these ninety-five, twenty were cases of ruptured livers, fourteen of which were operated upon with six operative deaths and a mortality rate of 40 per cent. The remaining six died without opera-

THE AUTHOR

Dr. Norris William Gillette, graduate University of Michigan; extensive postgraduate work in America and Europe; Fellow of American College Surgeons; Chief Surgeon Robinwood Hospital, Cleveland, Ohio.

*Read before the meeting of the Association of Surgeons of the Chesapeake and Ohio Railway, White Sulphur Springs, West Virginia, November 11, 1938.

tion. There were seventeen cases of ruptured spleen and four deaths, or a mortality rate of 28 per cent. There were thirty cases of injury to the kidney. Five deaths occurred in these thirty cases, five of which were operated upon. There were eleven cases of rupture of the small intestine with a mortality rate of 62 per cent. On examination of a large amount of literature on this subject I find substantially the same statements are given with relation to the type of injuries as I have quoted.

ABDOMINAL INJURIES OFTEN FATAL

Any abdominal injury can cause a fatal outcome from a rupture of an intra-abdominal viscus, and the blow does not necessarily have to be heavy. There may be no marks of external violence on the abdominal wall and the diagnosis of intra-abdominal hemorrhage necessitating operation may be extremely difficult. In the question of a ruptured liver, massive ascites, jaundice, and stupor demonstrate a liver sufficiently injured to cause death. Very seldom will one find a patient with this symptomatology recover. However, before the patient is allowed to come to this termination the abdomen should have been opened and an attempt made to stop the hemorrhage and reduce the toxicity by draining the abdominal cavity. A point in technique in stopping hemorrhage of the liver in patients who, due to their condition can not stand a large operation, is the use of a heavy tape passed through the abdominal wall under the liver and back out through the abdominal wall again. As much tension as is necessary to control hemorrhage can then be applied against the liver, pressing against the anterior abdominal wall. Packing with heavy sponges will often completely control moderate bleeding. In injuries to the spleen two methods of procedure can be adopted. The spleen, being such a friable organ, is sutured with extreme difficulty. Inasmuch as it is not an organ necessary for life, with a rupture of any magnitude it is advisable to remove it. A splenectomy is not difficult and the removal is attended with less likelihood of continuing hemorrhage than is the attempt to suture, and the time attendant upon the removal of the spleen is probably shorter in duration than is the attempt to find and suture the rupture, particularly when the tear is on the posterior aspect where it may be demonstrated with difficulty.

The diagnosis of rupture of the kidney is usually not difficult. Blood in the urine is noted in a large percentage of cases but not always. Due to the position of the kidney retroperitoneally, operation is usually not as necessary as is the rupture of an intra-abdominal viscus. Time usually can and, if possible, should be taken for observation of the patient and to allow some recuperation after the internal shock in these cases. The mortality rate is not so great either with or without operative procedure. If, of course, the renal artery is torn and there is sign of extensive and continuing hemorrhage, immediate intervention is indicated. The kidney is the least friable of all of the solid viscera and withstands surgery better than do the others.

TEAR OF THE MESENTERY

A common cause of intra-abdominal hemorrhage is a tear of the mesentery. This can occur without any other intra-abdominal tear or in complication with other visceral injuries. A slight hemorrhage from this cause need not be operated on if the patient is kept quiet and is administered some blood clotting serum, the best of which to my mind is sangasan. Too much delay with too great a hemorrhage will, of course, be fatal and the diagnosis, treatment, and ultimate outcome will revert back to good judgment. At times the question is a very close one to decide as to whether the abdomen should be opened or the policy of watchful waiting be adopted. The abdomen should not be opened whenever the injury is so severe that the additional burden of operation will cause dissolution of the patient, and also whenever there is more than a reasonable likelihood of the patient's recovery without operation. However, if the

patient can stand operation and there seems to be a continuing hemorrhage in the abdomen, with a slow steady drop in blood pressure, and a rise of white blood cell count, an exploratory operation should be performed at once. Glucose intravenously with acacia to hold up the pressure and subsequent blood transfusions will help the operator pull the patient through.

A ruptured intestine or stomach can be told by having made a flat plate of the abdomen and finding a bubble of gas under the diaphragm. It is, of course, imperative to open and drain the abdominal cavity in these cases immediately and suture the ruptured gut. A delay of a few hours is invariably fatal due to the onset of peritonitis. Saline introduced into the abdominal cavity and aspirated will remove the debris and help to slow down the beginning of peritonitis. The introduction of cololysate is helpful in controlling the growth of colon bacillus. Beginning immediately and every four hours thereafter until the patient is out of danger an ampoule of pitressin to stimulate peristaltic action should be instituted. The only time when these patients should not have surgical intervention is when they are in extremis on entering the hospital.

RUPTURE OF THE PANCREAS

There may be occasionally a rupture of the pancreas. However, this organ is very resistant to abdominal blows and the cases on record of injury to it are relatively few. When it does happen it will probably be evidenced by a sensation of a deep lying mass and there have been reported cases in which small necrotic areas were seen when the patient had been operated upon late, due to the digestive processes caused by the escaped pancreatic fluid. The pancreas must be sutured and drainage instituted. Drainage of this area has been carried on through a lateral incision, retroperitoneally.

There are a number of cases in the literature reported where an already existent stomach or duodenal ulcer has been ruptured by inconsequential blows to the abdominal wall. The bubble of gas under the diaphragm may be demonstrated in these cases, and in addition the board like hardness of the upper abdomen and the complete collapse of the patient will substantiate the diagnosis.

Early operation will save a large percentage of these patients and the same procedure should be followed in later treatment as was instituted in rupture of the gut.

Rupture of the bladder is evidenced by a pain in the lower abdomen, inability of the bladder to hold urine, frequency and urgency of urination and evidence of trauma in the bladder area. A rather severe injury is necessary to cause this trouble and it is usually associated with other evidence of trauma. It is always surgical. We have the same board like rigidity of the lower abdominal muscles in rupture of the bladder as is evidenced in rupture of gastric ulcer in the upper abdomen.

Stab wounds and gunshot wounds may penetrate any part of the abdomen. The bullet may carry in with it a small piece of clothing which will later cause severe infection. It is always advisable to open the abdomen in case of a penetrating wound. Infection is almost invariably carried in, one way or another. A small but continuous hemorrhage may be started and damage will be done which can best be treated shortly after the injury. The stab wound of course may be followed directly in, but the bullet may be deviated and severe injury may be evident at a marked distance from where one would expect to find it. Any type of injury may be found from a minor hemorrhage to the destruction of a vital organ. Only careful examination of the injury with adequate surgery may save the patient's life.

I am reporting twenty-two cases of abdominal injuries which came to operation, except three of the kidney cases. They were classified as follows according to major injuries: ruptured liver, five; kidney, six; spleen, two; pancreas, one; gut, three; bladder, two, and hemorrhage from mesentery, three.

In the ruptured liver cases there were two deaths. In the case of one of the deaths the rupture was recognized as being present, but was on the posterior aspect and found at autopsy. Attempt to control the hemorrhage was unsuccessful. In the other case two deep ruptures were found and the hemorrhage was rather easily controlled, but the man died of liver shock. The other three cases were all of a serious nature, but control of the hemorrhage was satisfactory and the glycogen content of the liver was kept up with continuous glucose administration intravenously. Blood transfusions were used in all of these cases.

Three of the kidney cases were operated upon and three were not. There were no deaths. The hemorrhage could be felt in the flank and kidney region when comparative palpation with the opposite side was carefully done. There were blood cells in the urine in four of the cases. Those coming to operation had massive hemorrhage from which there was a severe loss of blood elements necessitating an incision in the flank with control of the hemorrhage either with suturing or packing. Those that were not operated upon recovered entirely satisfactorily and while the mass of blood could be felt in the flank it was evident that the hemorrhage had ceased because of the ability of a transfusion to hold up the hemoglobin and red blood cell count.

SPLEEN RUPTURES

Both ruptured spleens were removed. One of them seemed to be nearly in extremis when he entered the hospital, but after fluids had been administered to hold up the blood pressure, the abdomen was opened and the spleen quickly removed. He made a slow but eventual recovery. However, he later developed massive adhesions throughout his abdomen and, about one year later, he was reopened for intestinal obstruction from which he recovered and has since been comfortable. The other spleen case was seen rather quickly after the accident and made a very uneventful recovery.

The pancreatic case was not recognized as such previous to operation, but it was determined that there was a continuing loss of blood elements and for that reason an exploratory operation was made. A drain was put down to the pancreas which gave a swollen and bloody appearance. There was a very moderate amount of drainage and the patient made a slow recovery. It could not be determined exactly how much damage had been done to the pancreas and while the hemorrhage was retroperitoneal and from the pancreas, yet there was little change in the pancreatic function as indicated by examining the stools for fat, and no general digestive processes were evident.

TWO RUPTURED GUT CASES FATAL

In the ruptured gut cases there were two deaths and one recovery. The patient that recovered was seen within an hour after the accident with marked pain in the abdomen but no sign of external violence. The hemoglobin and red blood cell count showed a marked fall with a definite rise in leucocyte count. The abdomen was opened and it was found that midway in the ileum there was a complete tear with the intestinal contents spilling into the abdominal cavity. An anastomosis, side to side, was done and the abdomen washed with saline. He developed both a ventral hernia and later severe adhesions necessitating operations for each. He now again has partial obstruction to his bowels and it may be necessary to reoperate upon him as a life-saving measure, but not from choice. The first of the cases that died was seen by me at the hospital shortly after the accident, and I advised that the abdomen be opened, but the family called in their own physician who was of the opinion that inasmuch as the boy was apparently not in severe shock that delay was justified. Two days later I was again called into the case when peritonitis was perfectly evident. I opened the abdomen and found the intestine was entirely torn across. A plastic exudate covered the peritoneum and the abdomen was filled with intestinal con-

tents. He succumbed shortly afterwards. The second case that died was operated upon three hours after the injury and was found to have not only an intestine torn loose from the mesentery for a distance of two feet, but it was ruptured as well. There had been a severe loss of blood with internal shock. An anastomosis was performed but the patient succumbed in 72 hours in spite of transfusions and supportive treatment.

TREATMENT OF RUPTURED BLADDER

Of the ruptured bladder cases, one died and one lived. Both were treated by opening the injured abdomen and suturing the bladder for control of hemorrhage and spilling of urine. Abdominal drainage was instituted in both cases.

The ruptured mesentery cases all lived. It is possible that one of them was unnecessarily operated, inasmuch as the tear in the mesentery was only one and one-half inches long and the loss of blood was not marked and apparently had clotted.

However, I would prefer to operate upon one case unnecessarily than to make a mistake in the opposite direction and lose a life by it. In one case there was a marked tear in the mesentery with loss of blood supply to approximately a foot of intestine. Anastomosis was done in this case and the mesentery sutured, the patient making a nice recovery. In the third case the mesentery was torn rather badly and hemorrhage was continuing. There was no apparent portion of the intestine without blood supply, so the mesentery was sutured and the patient recovered nicely.

I wish to cite here another case which was traumatic in origin but was sustained in a peculiar manner. A molder was having the sand dusted off from his clothing with a high high compression air hose when he felt a severe pain in his abdomen. The man who was holding the air nozzle has repeatedly stated that at no time was the nozzle closer than one foot to the man's body, and that the nozzle was not injected into the man's rectum in a spirit of levity. There was a marked abdominal distention and upon opening the abdomen it was found that there was a large amount of accumulated blood and that the entire colon was distended like a toy sausage balloon. With a tube into the rectum the colon was collapsed. The longitudinal striae of the colon were severely torn but at no point was there a rupture of the intestine, showing the possibility of marked distention of the large bowel. This man has made a very good and apparently complete recovery. His peristaltic action has not noticeably decreased.

A severe blow of the abdomen may cause an intramuscular or subcutaneous hemorrhage, or contusions extraperitoneally without damage to the abdominal viscera necessitating operation. When this occurs there is almost universally a spasm of the recti muscles simulating that of an acute peritoneal irritation. Diagnosis then becomes difficult. To open the abdomen wtih only a muscular injury must, of course, not be done, and careful examination and observance of the trend of the blood elements must be utilized to obviate this error. It may on occasion be necessary to incise an abdominal wall hematoma and evacuate the blood which may become infected and cause abscess formation, but the majority of blood accumulation will be absorbed with rapidity. Also there may be serious intra-abdominal injury with an obscuring wall damage that taxes the diagnostic ability of the examiner. In women hemorrhage can be detected in the abdominal cavity by vaginal examination, the blood accumulating in the pelvis where it is felt posterior to the uterus. In men the other clinical signs and laboratory findings must suffice for the diagnosis.

THE EXCITED FAMILY

After a severe accident we usually have a hysterical or excited and worried family to cope with, one or more members of which may desire a change in the treatment. The husband of one of my patients insisted on operation for his wife. She had a hemorrhage around the right kidney which could be dis-

tinctly palpated, but no intra-abdominal hemorrhage and was entirely comfortable. Her abdomen was soft and her bowels moved well. However, her husband found a physician who would operate her when I refused to open her abdomen. Nothing was found wrong in her abdomen but due to a post-operative ileus she was kept in the hospital one month longer than was necessary. No cure has been found for impatient husbands and surgery-hungry physicians.

The Commodore Vanderbilt - Mercury accident on the New York Central in the summer of 1938 caused a variety of injuries. In addition to the expected contusions, bruises, lacerations, and abrasions there were five severe abdominal injuries. All of these patients were riding forward in the diner of the Commodore Vanderbilt which crashed into the Mercury and when the train made its sudden stop and were thrown against the dining tables which were at a level with their abdomens and the injuries resulted, one with enough severity to cause death three days later from a ruptured liver. No other serious injury was caused in any other part of either train. Three of these people had laparotomies performed on them. The other two recovered without operation.

CONCLUSION

1. After any serious accident the abdomen must be carefully examined to determine the presence or absence of intra-abdominal injury.

2. A rapid fall in the blood count and the hemoblogin without external evidence of loss of blood indicates an internal hemorrhage with a probable necessity for early laparotomy unless the injury lies in the kidney.

3. A flat x-ray plate will give an indication of a ruptured intestine or stomach.

4. Procedures for treatments of various injuries are indicated.

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TREATMENT OF TULAREMIA

That sulfanilamide may eventually prove of value in the treatment of tularemia is indicated in the report of one case, in *The Journal of the American Medical Association* for July 22, so treated by Walker L. Curtis, M.D., College Park, Ga.

Tularemia is generally contracted from infected rabbits. While one is dressing such rabbits the infection can easily pass into his blood stream through a scratch or abrasion of the skin.

The case reported by Dr. Curtis occurred in a middle-aged woman who was suffering from chills, fever, nausea, vomiting and headache. Her condition grew steadily worse: to the general symptoms were added mild pain in the right arm and more severe pains over the chest and right upper quarter of the abdomen; she became weaker and somewhat irrational.

"Two days after the administration of sulfanilamide," the author states, "the symptoms of tularemia, severe for more than two weeks, subsided and convalescence has been uneventful. So far I have found no report of an earlier case of tularemia successfully treated with sulfanilamide.

"After the patient had recovered she recalled that a week before she became ill she had taken some dressed rabbits from salt water and wrapped them up. The nature of her occupation was such that she often had scratches and abrasions of her hands."

ENDOSCOPY—ITS RELATION TO EVERYDAY PRACTICE *

By WAITMAN F. ZINN, M. D.
Baltimore, Maryland

THE practice of endoscopy is now quite firmly established as essential in the diagnosis of certain diseases of the air and food passages. At the present time it is practicable in all large cities and in most of the smaller ones. This fact is the more astonishing when one thinks of the comparatively short time in which this highly specialized art has been originated and developed to its present high standard by the finely mechanical mind and unparalleled skill of Chevalier Jackson. Endoscopy is practiced for three purposes: removal of foreign bodies from the air and food passages; diagnosis of lesions in the air and food passages, and the treatment of such conditions.

The question is often asked as to what types of cases are suitable for endoscopy. There are many of them: all cases of foreign bodies lodged in the larynx or esophagus or aspirated into the air passages; cases presenting symptoms of dysphagia; any cases presenting unexplainable symptoms appearing to originate in or closely connected with the air passages or lungs; all cases requiring direct examination of the larynx for biopsy or treatment. The only contraindication for endoscopy is aneurysm. The procedure should not be attempted when this condition is present.

Of course it is recognized by the profession and by most laymen that for the removal of foreign bodies endoscopy is a successful operation. Such cases are referred eagerly and promptly into the hands of the endoscopist. Increasingly, I find, too, that cases needing diagnosis, such as tumors of the lung or bronchus, ulcerations, or strictures are being sent more promptly for examination and biopsy and for possible ultimate treatment.

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The first essential for successful results is a thorough knowledge of the art and skill of introducing the scope. This can be learned only by faithful practice under a competent teacher. Next comes ample equipment to take care of all types of cases presented; last, well trained assistants. Thus equipped, the endoscopist is ready to cooperate with internist, pathologist, bacteriologist, röentgenologist and surgeon. The diagnosis furnished by this group of specialists gives definite information as to the exact location of the lesion, the part of the lung and the lobe affected, the possible etiological factor (whether there is an unsuspected foreign body or a neoplasm, benign or malignant), and the presence of dilatations, strictures and various forms of stenoses. I have made it a practice not to reply on any one method of diagnosis. You all, I am sure, have had the experience of getting a negative laboratory or x-ray report at the first examination only to learn later that your own original positive diagnosis was correct. I do not advocate that any of these methods be neglected, only that they be studied jointly with a very careful history, the importance of which cannot be too strongly emphasized. Patients need have no fear of a general anesthetic, as the local application of a two per cent solution of pontocaine to the throat is all that is necessary or desirable. Children require no anesthetic except in very rare complicated cases.

*Read before the Harrison County Medical Society, Clarksburg, West Virginia, February 2, 1939.

Practically all foreign bodies that have entered the body through the mouth can successfully be removed. Jackson claims ninety-eight and one-half per cent successful removals. Of course much depends on the preparation made before the operation. The surgeon must be sure that he is familiar with the type and location of the foreign body to be removed. Only in rare instances should the operator allow anything to rush him in what he is doing. Too often, failure in many fields of medicine can be attributed to hasty preparation and insufficient thought and careful planning given before actual procedure is begun.

BEEF BONE FOUND

I recall a case of a woman referred for bronchoscopy with a history of asthmatic symptoms for the previous three years. Her condition was not influenced by climate or treatment. X-ray revealed some infiltration in the right base. On bronchoscopy the right lower bronchus was found to contain some granulation tissue and a purulent secretion. While foreign body was suspected, it was not found until the second examination when a small beef bone was removed. The patient then recalled having choked while eating meat several years before and that the asthma had begun the same evening. A similar case is that of a child treated for several months for asthma. Bronchoscopy revealed an orange seed, the removal of which produced complete recovery. As Jackson has so ably put it, "all cases that wheeze are not asthma."

Patients presenting a history of hemoptysis where the origin of the trouble cannot be determined should have a diagnostic endoscopy since it may be the only means of diagnosis. At one of our large sanatoria for tubercular patients, many cases are referred to the bronchoscopic clinic for complete check-up. Bleeding is not constant in carcinoma nor is it so frequent as in tuberculosis. An ulcer of the bronchus or a foreign body in the lung may be the cause of severe hemorrhage. Two weeks ago a patient was referred to me with a history of expectoration of blood at frequent intervals for the past few years. This had started when the patient was about nine years of age, but had become quiescent. One month ago it became necessary to give a transfusion following a very severe hemorrhage. A thorough bronchoscopic examination, with x-ray, revealed a foreign body which had evidently been present for a good many years. It was located in the right lung at the extreme end of the lower lobe. Because of the length of time the foreign body had been present, the case was one which required study and planning before removal was attempted. With the aid of a biplane fluoroscope the article was removed and proved to be a sinker such as is used by small boys when they go fishing. The patient recalls an incident which probably resulted in his aspirating the lead piece some thirty-five years ago.

The most important symptom referable to the esophagus is dysphagia which means some kind of lesion, either cancer, cicatricial stenosis, ulcer, benign growth, diverticulum or cardiospasm. These cases call for correct diagnosis promptly made. I have had cases of cancer in which a positive diagnosis was made before any signs were found by fluoroscopy or x-ray. One patient I recall was admitted to the hospital for a rest treatment and it was found, in taking her history, that she had had occasional slight difficulty in swallowing. Diagnostic esophagoscopy revealed carcinoma at the lower end of the esophagus. Thus the weeks of "rest" became treatment for a condition which was unsuspected, and the palliatives administered made the patient's life much more comfortable.

BRONCHIOGENIC CARCINOMA

With the aid of bronchoscopy, lesions of the lungs are diagnosed early, and permit treatment early enough to produce cures. This point is best illustrated in bronchiogenic carcinoma. Early detection of the lesion, and knowledge of the exact location of it will permit removal of the affected part by thoracic surgery. During the past year about twenty-five cases of bronchiogenic carcinoma

have been seen at my clinic and those suitable for surgery were referred to the surgeon for either lobectomy or pneumonectomy. The bronchoscopist is best able to determine which cases are operable, since he has the advantage of viewing the growth and judging its extent. A delay may mean failure, and death for the patient, since the relief afforded by palliative treatment will allow the growth time to extend and invade the surrounding tissues further. It should be borne in mind that atelectasis of a lobe of the lung is always suspicious of bronchial tumor and should be so considered until proven otherwise. On the other hand, a prolonged case of lung suppuration may produce a benign constriction accompanied by atelectasis which will present much the same picture by x-ray. The bronchoscopic injection of lipiodol is an invaluable aid in demonstrating the size and position of the tumor or abscess. Once the tumor is located it is frequently necessary to take more than one biopsy before a positive pathological report is obtained. Do not be discouraged by failure of agreement among the various methods of examination the first time the patient is seen.

The question of how soon a diagnostic bronchoscopy should be performed in a case of suspected suppurative lesion is an interesting one. I feel that the prompt use of the scope will determine what course the disease is likely to follow—whether it will clear up at once or become chronic. Cases of lung abscess following tonsillectomy illustrate very well the type which lends itself to the treatment readily and frequently is completely cured by the use of the scope once or twice only. The prime factor in the treatment of lung suppuration of any type is the establishment of ventilation and drainage as quickly as possible.

LARYNGEAL CASES

Laryngeal cases lend themselves particularly well to endoscopic diagnosis and treatment. It has been well pointed out that it is a mistake to treat a patient for hoarseness for more than three weeks without a laryngoscopy. The hoarseness could be the result of a combination of diseases such as tuberculosis, syphilis and cancer, or any one of them could produce the same result. Paralysis of the recurrent laryngeal nerve will do likewise. In cases of tuberculosis, cauterization will help materially when instituted early enough. The presence of any growth demands a biopsy for early diagnosis. There should be no preliminary experimentation with x-ray, radium or diathermy, for this may allow the condition to drift along to a stage beyond medical or even surgical aid. Many cases of carcinoma of the larynx can be effectively treated if taken in time.

While no one can claim that endoscopy is entirely without danger or discomfort to the patient, since complications are possible in any operative procedure, practitioners should remember to emphasize with their patients the supreme importance of an early diagnosis whatever the condition present, and should insist on endoscopy as the only means of a positive diagnosis and possible cure in many cases.

FUTURE INFLUENZA EPIDEMIC

Hogs and earthworms may conceivably serve as the source of some future human epidemic of influenza, *The Journal of the American Medical Association* for July 22 declares in an editorial which discusses "Earthworms as Carriers of Swine Influenza."

Commenting on the work of R. E. Shope, M.D., of the Rockefeller Institute, reported in May, which established the fact that earthworms may function as intermediary hosts for the swine influenza virus, *The Journal* says: "Whether or not the swine influenza virus is an aberrant type of the human influenza virus is still controversial. Shope, however, is inclined to deduce from serologic evidence that 'the virus of swine influenza is a surviving variety of the agent primarily responsible for the great human pandemic of 1918.' "

Swine influenza was first recognized in 1918, at the time of the pandemic of human influenza. At that time swine influenza was assumed to be a veterinary manifestation of the human disease.

THE DISCHARGING EAR*

By J. HALLOCK MOORE, M. D.
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FROM the viewpoint of the otologist there is probably no condition that is still as much neglected by the lay and the general medical minds as a discharging ear. This is a deplorable state of affairs when one stops to consider the results of this neglect. In the past five years I should estimate that I have been consulted on over five hundred cases of chronic otorrhea. Approximately forty of these had developed mastoid complications, of which number, through radical surgery, such as jugular ligations or the Eagleton operation, and with the aid of sulfanilamide, about twenty are living and well today. Many of the fatal cases exhibited no symptoms, except transient pain from time to time and the aural discharge until the meninges and brain became involved in the terminal extension of the infection.

What constitutes a discharging ear? As a definition we might say any ear from the canal of which there is any discharge except the normal cerumen or wax. This includes many conditions ranging from a typical acute otitis media to a simple chronic external otitis such as a weeping eczema.

For the purpose of study, otorrhea may be divided into four classes: namely, those conditions involving the external ear, those involving the middle ear, those involving the mastoid, and lastly, conditions which affect the surrounding tissues and cause an aural discharge.

From an etiological standpoint an external otitis is most commonly caused by trauma to the canal wall by the patient attempting to remove wax by a match, bobby pin, etc. The traumatized area becomes infected and a furuncle forms. This ruptures resulting in an otorrhea. Not infrequently these furuncles are multiple and cause a complete atresia of the canal wall which makes it impossible to visualize the tympanic membrane. If a secondary cellulitis or lymphadenitis occurs the condition becomes very difficult to differentiate from an acute mastoiditis, and such a differential diagnosis is best left to an otologist. For the simple furuncle an alum acetate pack of the canal wall with local moist heat will either abort or cause resolution. The above condition causes very severe pain but no bony tenderness and makes evident the sound sense in the old saw "never pick your ears with anything smaller than your elbow."

Other causes of external otitis are eczema of either the dry or weeping type, seborrheic dermatitis of the scalp with involvement of the auricle, and trauma of the canal by foreign bodies such as gasoline, hot metal, coal dust, etc.

The second and by far the most important group of cases of discharging ears are those that involve the middle ear. These occur in the exanthemata of childhood, influenza, upper respiratory infections, and are among the most frequent complications of scarlet fever. The mode of involvement is usually by direct extension from the nasopharynx via the Eustachian tube. Patients frequently attempt to clean out a clogged naris by hard blowing which results in pus or mucous being forced into the middle ear. This also occurs

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*Read before the Cabell County Medical Society, Huntington, West Virginia, April 13, 1939.

during coughing, or the pus may extend through the Eustachian tube from an infected mass of adenoids. After reaching the middle ear the organisms in the infected mass multiply. Nature attempts to destroy them. Inflammation of the tympanum occurs. Leucocytes are thrown out, and shortly the pressure in the middle ear is sufficient to cause pain.

TIME FOR DRUM INCISION

At this point the patient's temperature usually rises about a degree and he complains of pain in the affected ear. Upon inspection there will be found a slight bony tenderness over the mastoid and the drum head will be red and bulging toward the external auditory orifice. This is the correct time for an incision of the drum to reduce the middle ear pressure.

However, should the patient fail to see his doctor at this time, and most of them do not seek medical aid for a simple "bealed ear," the pressure due to the products of inflammation increases and pus is forced through the aditus into the mastoid antrum where it trickles down into the dependent mastoid cells.

Now the clinical picture changes. The indefinite mastoid tenderness of the otitis media stage reaches the definite tenderness of early mastoid involvement and the temperature may reach the stage of a hyperpyrexia. Upon inspection, the canal may or may not exhibit a sag of the posterior superior segment, and the tympanic membrane is about the same as in the otitis media stage. The patient, however, usually complains of more pain. Even at this point a myringotomy usually will suffice and the patient will recover without mastoid surgery. Not infrequently the drum membrane will rupture spontaneously at this or at an earlier stage in the infectious process. Unfortunately such a spontaneous rupture of the tympanic membrane may or may not be adequate to evacuate the products of infection. If the drainage thus obtained is complete, a cure results, but if the ruptured opening is too small or similar to a medical incision of an abscess and drainage is incomplete either a mastoiditis or the typical chronically discharging ear results. Such an opening made adequate early enough may save the patient either an operation or years of distress and the danger of a chronic otitis media and mastoiditis.

If, however, the tympanic membrane either does not rupture or is not opened surgically, or if the organism is such that it does not cause sufficient inflammation to produce pressure, the mastoid process will be completely filled with pus. This usually goes on until the bony structures become involved and an osteomyelitis results. Then it is only a period of time until either the inner or outer table of cortex is eroded and we have either a cortical perforation or an involvement of the meninges and brain. During this latter phase the inner ear may be involved and the symptoms of a labyrinthitis are obtained.

THE CLINICAL PICTURE

The clinical picture varies from this point directly as to the virulence, and type of bacteria, is to resistance and immunity of the individual. The discharge from all discharging ears should be examined microscopically, either by direct smear or preferably by culture. The organisms usually found in their order of frequency are (1) the streptococcus, (2) the pneumococcus, (3) the Friedlander bacillus, (4) the pneumococcus encapsulatus or type III, and (5) the staphylococcus. This bacteriology is important as by knowing the organism with which he is dealing the otologist can best decide his course of action. The streptococcus is by far the easiest to handle as sulfanilamide in sufficient doses will usually suffice to clear up the condition. Local measures such as cleansing the canal and following the same with alcohol and boric acid drops usually will clear up the normal pneumococcic and Friedlander infections. Of course these germs may be typed and suitable sera given, but such has not been found necessary in the author's experience; and with the discovery of sulfapyridine the pneumococcic types will probably be much more

easily handled. In the type III pneumococcal and in the staphylococcal infections, where osteomyelitis occurs early, and where insufficient pus is formed to cause pressure an early mastoid operation is usually the procedure of choice. I have seen cases of pneumococcal type III mastoiditis which came to autopsy in which the only symptom of ear involvement was pain and no otorrhea existed.

SELECTIVE THERAPEUTIC FEATURES

As each of the above conditions have appeared in their pathological sequence I have tried briefly to enumerate the selective therapeutic features. In general, any red bulging ear drum with pain and fever should be incised. If any doubt exists an otologist should be consulted. Mastoid tenderness usually persists from three to five days following a myringotomy; if it persists longer or if it disappears and returns, it is very good evidence of a mastoiditis. After a myringotomy in an uncomplicated otitis media the temperature should fall by either crisis or lysis in from one to three days. If it persists a mastoid involvement should be suspected. After a myringotomy the canal should be cleansed by hydrogen peroxide and some antiseptic drops instilled at about three hour intervals. Irrigation of the canal and middle ear with boric acid solution should be avoided as very frequently sufficient pressure is obtained to force the infected matter through the aditus into the mastoid, which is what we are trying to avoid. In all cases where a mastoid involvement is suspected a competent ear surgeon should be consulted and if necessary the case hospitalized for observation. X-rays of the mastoids are of little value in infants, but of great value in children and adults. Serial pictures at either three or four day, or weekly intervals are of infinitely more value than a single plate, and in all instances both ears should be plated.

With the above therapy, or in instances without it, one of two things will occur to the acute ear. It will either go on to an acute mastoiditis or it will subside. The acute mastoid should be operated upon and cleared up; but what of the ear that subsides? Is it cured or is it a future source of danger? In other words, what constitutes a cured ear? That is a hard question to answer, but in general it is one in which there is a complete cessation of the aural discharge and a normal regeneration of the tympanic membrane. X-rays of such an ear should show clear cells and an audiogram should demonstrate little or no loss of hearing. Adjuncts in bringing about such a condition are the removal of tonsils and adenoids in children, clearing up infected sinuses, etc. However, suppose this ear does not completely dry up. There is a small amount of otorrhea, the drumhead fails to regenerate, and the mastoid x-ray shows chronic changes. At times these patients have a slight pain and very frequently a profuse aural discharge, especially when they have a cold. Such patients are about as safe as the little negro boy who was sitting on a keg of dynamite and drumming upon the same with his heels. The chances are it will not go off, but if it does it is too bad. Such a patient should be in the hands of a good ear man whose line of procedure will be about as follows: First, he will try to dry up the middle ear by drying agents. Second, x-rays will be taken and kept on file for comparison should the ear become worse. Thirdly, if the ear becomes dry it may be considered safe provided the mastoid process appears sclerotic in the x-ray. Fourth, should all measures fail, either a simple, modified radical, or radical mastoidectomy should be done. The nature of the operation is determined by the x-ray and the degree of hearing that the patient has. Remember an old chronic ear that is dry is comparatively safe, one that is discharging is a potential source of danger, and one that has a foul discharge is undergoing a necrosis of bone or an osteomyelitis. In the presence of such an ear any meningeal signs or symptoms should immediately indicate the necessity of at least a radical mastoidectomy. Any ear that discharges more than six weeks is more than an otitis media.

Conditions about the auricle which may cause an otorrhea need only to be mentioned in passing. They are (1) an acute suppurative parotiditis with rupture into the external auditory canal, (2) cellulitis of the face, (3) post auricular lymphadenitis with abscess formation, and (4) scalp infections. In such conditions the primary abscess should be drained and the aural canal packed with vaseline gauze.

In conclusion an otorrhea may be local to the external canal, in which case alum acetate packs usually will dry it up. In an otitis media the drumhead should be incised early and a smear made from the resulting discharge. An otorrhea that persists more than six weeks is evidence of a mastoid involvement. A dry ear is comparatively safe, but a discharging ear is a potential source of danger and if the discharge is foul in character a bony necrosis is occurring. In all questions of doubt it is better to consult your otologist and let him have his share of the burden of worry.

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THE HAGEDORN ERA IN DIABETES MELLITUS*

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JOSLIN[1] aptly has divided the medical history of the treatment of diabetes mellitus into the Naunyn Era (1897-1914), the Allen Era (1914-1922), the Banting Era (1922-1936), and the Hagedorn Era (1936-). This consideration of the changing approach to the problem of the diabetic patient has the merit not only of emphasizing the value of the labor and contribution of physicians who were trail blazers for their respective eras, but also of carefully marking scientific progress in our achieving a more physiologic and thereby more nearly perfect management of this intricate disorder of metabolism.

At present most physicians are, or should be, concerned with the behavior and clinical usefulness of the slow-acting insulin preparations. Such preparations are the mark of the Hagedorn Era.

Insulin, as prepared for injection before 1935, is rather rapidly absorbed from beneath the skin, showing a weak action on blood sugar for an hour, gradually increasing its effect to a maximum in two or three hours, and rapidly losing its effect thereafter. This is designated now as unmodified, ordinary, or regular insulin (RI). If one considers the nicely balanced and seemingly constant supply of insulin in the normal human body, and compares the effect of this with the "peak effects" produced by injected regular insulin in a diabetic individual, one is necessarily impressed by the poor physiologic action of the latter substitution therapy. The contrast is graphically portrayed in Figure I, representing blood sugar changes in a normal individual together with such changes in a diabetic patient receiving two doses of regular insulin during the day. The swings in the blood sugar show the marked inadequacies in treatment where two blasts to the level of

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circulating glucose are given for the purpose of assisting the patient with his faulty carbohydrate metabolism.

The recognition of this definite shortcoming in the medical assistance given to the diabetic patient led to numerous efforts to find a slower and longer acting insulin. Actually hundreds of unsuccessful efforts to prepare an insulin which might be taken by mouth

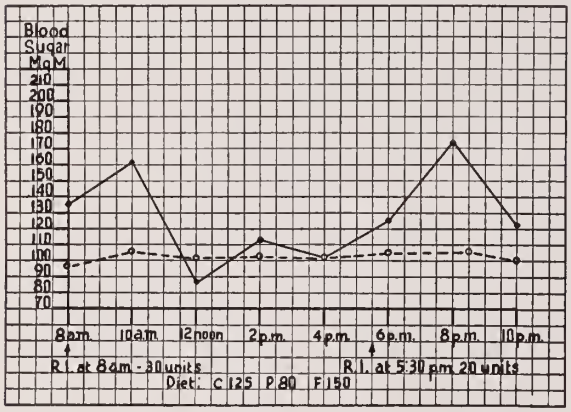

Fig. I. Illustrating the "peak effect" of regular insulin (RI). Blood sugars of diabetic patient receiving regular insulin are represented by solid line. Blood sugars of normal man are represented by broken line.

and effectively absorbed from the gastrointestinal tract were expressions, in part, of the desire to overcome the disadvantages of the sudden peak effects of injection. All such efforts are unavailing as yet. However, much progress has been made by devising methods of slowing the absorption of effective insulin from the depot placed beneath the skin.

CHARACTER OF THE NEW INSULIN

Protamines are the simplest naturally occurring proteins and have, heretofore, belonged almost exclusively to the considerations of the biochemist. Miescher,[2] in 1868, identified such a protein called salmine from extracts of salmon sperm. By 1890 Koessel[2] had found several other protamines and observed their powers as precipitants of proteins in ammoniacal solutions. Hagedorn and his co-workers,[3] in 1934, combined various protamines with insulin. They found a monoprotamine insulin compound, suitably buffered, to have limited solubilities which resulted in the prolonged action of a single dose given subcutaneously in experimental (depancreatized) diabetes of laboratory animals. During 1934 and 1935, the new compound was administered to 85 patients in Steno Memorial Hospital, Copenhagen, Denmark. From this combination, insulin has a greatly diminished "peak effect" on blood sugar. The duration of action is prolonged to more than twice that of regular insulin in the same patient, with a concomitant diminution of the intensity of action. Hagedorn and his coworkers observed no untoward results from the use of protamine insulin in their patients. Krarup[4] in his monograph stated, "It has been found by tests on animals and by self-experiments that no danger is connected with its use. The quantity of protamine in the compound is extremely small. No disadvantages of any sort, either local or general, have ever been observed during the two and one-half years that protamine insulinate has been in use. The injection is painless and there is no ill effect at the site of the injection." Because of the wasting of part of the older type insulin at the peak of its activity, it was found possible to use a slightly smaller daily dose of the new form. In the same month, Root, White, Marble and Stotz published a confirmation of Hagedorn's experience.[5]

ZINC SALTS AND INSULIN

While this work was in progress, Scott and Fisher[6 7] found that zinc given with the old form of insulin in laboratory animals prolonged the hypoglycemic effect. Inasmuch as Kerr,[8] Rabinowich,[9] and others[10] confirmed these observations regarding the action of zinc salts in combination with insulin, there appeared on the market the present new form of insulin. This product, protamine zinc insulin (PZnI), shows many desired qualities in clinical use. Where Hagedorn's original preparation (PI) had an activity lasting for 16 or 18 hours, the PZnI effect persists definitely for more than 24 hours.[9 11 12 13] The PZnI is stable and fully active six months after manufacture; the precipitate is finely divided and quickly returns to an even suspension when the vial is shaken.

In view of the minute quantity of zinc administered as PZnI, the possibility of zinc toxicity seems to be exceedingly remote. PZnI contains about 0.08 mgm. of zinc in combination with forty units of insulin in one cubic centimeter of solution.[9 11] A severe diabetic patient would receive less than 0.5 mgm. daily from the use of this preparation. Drinker and Fairhill[46] have observed: "It is significant that during the many years in which zinc-lined pipe has been in use no definite cases of acute or chronic illness have ever been traced with certainty to zinc." Lutz[14] found that zinc occurs in almost all plant and animal tissues. In man the tissues relatively high in zinc concentration are the liver, bone, hair, and pancreas. The pancreas of man contains an average concentration of 0.00124 mgm. per gram. One wonders whether the comparatively high concentration in the pancreas, particularly, may not be of significance for the excellent maintenance and constant action of insulin in the bodies of healthy men and animals. The slightly prolonged action of crystalline insulin (containing zinc in the small concentration of one mgm. in 500 units) over that of regular insulin has been demonstrated.[9 15 16] Altshuler and Keiser[17] concluded from clinical experiments that the prolonged action of crystalline insulin cannot be attributed entirely to its zinc content. Sprague and Rynearson[15] thought that the addition of zinc to regular insulin prolonged its action to a time comparable with that of crystalline insulin.*

AUTHORS' EXPERIENCE

On the medical service of the Davis Memorial Hospital, PZnI has been used in twenty-five diabetic patients during the past two years. There were seven men and 18 women in this group, with ages varying from 22 years to 73 years. Eleven of the group were 60 years of age or older and suffered from the mild senile type of diabetes mellitus. The smallest required dose of PZnI was 10 units; the largest maintenance dose was 60 units supplemented by 20 units regular insulin each morning. For the entire group, the average required dose of PZnI was 27 units. In the incomparably larger series of Joslin the median dose is 22 units.[18] In Figure II a typical daily blood sugar curve is shown from a patient receiving 30 units of PZnI each morning before breakfast.

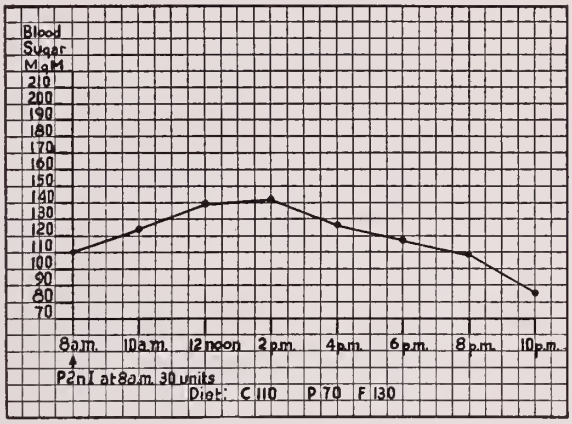

Fig. II. Illustrating the effect of protamine zinc insulin (PZnI).

It has been found that there is a slight but definitely cumulative action during the first few days after starting PZnI. This has been observed by others, and arises from the fact that the diabetic patient's schedule calls for insulin every 24 hours while there is some effect on blood sugar 36 or 48 hours after the use of a single dose. For this reason we insist on patients remaining in the hospital until the dietary-insulin ratio is satisfactorily established. One can change the patient's insulin from the regular type or start the new insulin in a recently discovered diabetic patient without hospitalization. Hypoglycemic reactions are invited by such maneuvers in the out-patient department and, as such experiences lessen the patient's confidence in the therapy, it seems better to have the patient in a hospital at the beginning of the treatment.[22]

ADVANTAGES OF PROTAMINE ZINC INSULIN

As has been inferred, the chief merit in the use of PZnI lies in the slower and presumably more nearly physiological action in the production of glycolysis.[8 9 11 15 18 23 24 25]

*Slowing of the hypoglycemic action from such combinations of insulin as insulin tannate, histone-insulin, and alum-precipitated insulin has also been demonstrated.[19 20 21] As yet there has been no occasion for wide application of such products.

This slow action is due entirely to the poor solubility of PZnI in tissue fluids, which in turn prolongs its delivery to the blood stream.[8] Longwell and Ravin[26] demonstrate that, if given intravenously, "there is no essential difference between the reaction of the same animal to regular insulin and protamine insulin." A correlated advantage is the decrease in number of injections required by the moderately severe or severe diabetic patient. Since a single dose has an activity lasting longer than 24 hours, there seems to be little or no advantage in giving more than a single dose in any 24 hour period. In the group of 25 patients in our experience, more than one dose of PZnI in a day was never given. Since Joslin[27] has used as much as 300 units of protamine zinc insulin successfully in a single dose, it seems unnecessary to give such insulin in divided dosage (morning and evening) as advocated by Levitt and Castiglia,[28] and by Richardson and Bowie.[29] A few severely diabetic patients in our experience required both PZnI and RI for adequate management. Jordan,[30] Whitehall and Harrop,[31] Himsworth[32] and others find that both slowly and rapidly acting insulin may be required. Wilder,[13] in his review, finds that with instances of severe diabetes "it is rarely possible to obtain satisfactory control with one dose of protamine insulin alone. It thus frequently is necessary also to use some unmodified insulin with it." It should be mentioned that Sindoni[33] decided from experimental and theoretical bases that protamine zinc insulin should never be prescribed alone but always should be used as an adjunct to regular insulin. He prefers regular insulin to oxidize the rapidly absorbed glucose of the meals. Such treatment has the disadvantage of entailing additional hypodermic injections for the patient. We do not follow such a regimen.

NEEDS OF AVERAGE PATIENT

It is confirmed by our experience that the average patient needs somewhat less PZnI as compared with the previously required RI.[11 34 35] This is to be expected from the saving of insulin action which is dissipated in the abrupt "peak effects" of the rapidly acting RI.

In our group few patients have shown symptoms proven to be or suspected of being due to hypoglycemia. Reactions are found by most clinicians to be far less frequent than from the use of regular insulin.[16 34 36] Drysdale[37] finds PZnI fully as useful in children as it has been in adults. In general, patients are more cooperative and insist that they feel better under PZnI than under RI.[18 47]

Joslin[1] in 1936, gave the following particular indications for the use of protamine insulin:

1. Diabetes of recent onset and mild diabetes.
2. High fasting blood sugars.
3. Multiplicity of dosage.
4. Sensitivity to insulin.
5. Hepatomegaly (noted by Hanssen[38] and Rabinowich[9]).
6. Lipodystrophy at site of insulin injections.

DISADVANTAGES OF THE USE OF PROTAMINE ZINC INSULIN

The prolonged and not always predictable action of PZnI may lead to difficulties in exceptional cases. A patient who vomits from an incidental cause or who cannot take the expected amount of food in the evening, may suffer a reaction from the previous morning dose of insulin. Glucose for parenteral use is usually difficult to obtain in such an unplanned emergency. This is one reason Whitehall and Harrop[31] hesitate to give more than 30 units of PZnI in one dose to any patient.

It should be generally recognized that hypoglycemic reactions from the new insulin have the following noteworthy characteristics: (1) The blood sugar may reach 40 mgm. or below without reaction symptoms.[10 11 12 22] (2) The onset of a hypoglycemic reaction is more insidious and differs from that of an overdose of regular insulin.[11 22 23 35 39] The early symptoms are of great importance, and include: fatigue; confusion; drowsiness or irritability; headache usually observed in

early morning hours; inappetence for food, or nausea; difficulties in speech; paresthesias, as numbness and tingling in the extremities; and visual disturbances, as diplopia.[11 22 23] After receiving readily utilizable carbohydrate, and appearing to be recovered, such a patient may lapse again into coma when the carbohydrate has been oxidized in metabolism.[11 31] To combat this, carbohydrate must be kept available in the patient for 36 to 48 hours.

Bennett, Davis, Gardner, and Gill[40] observed that at least one death had occurred in England from the apparent effects of PZnI and state: "We are strongly of the opinion that great caution must be observed in their (Insulin retard,* protamine insulin with zinc, etc.) use when a dose exceeding about 30 units is required." Needless to say, if both insulins are used care must be taken in timing the doses so that the maximum effects of the two doses do not coincide.

Slow and long-acting PZnI is not the insulin of choice in instances of severe acidosis, acute infection, impending coma, or in those diabetic patients suffering from acute surgical conditions.[22 35] Here rapid insulin action is usually mandatory. Kepler[41 42] found that slow-acting insulin may have a place as an adjunct to the use of regular insulin in the treatment of severe acidosis and coma. Mosenthal,[25] Wilder,[39] Myers and Perkin[43] use both types of insulin in coma. Rabinowich[44] considers such combined use ideal in complications of diabetes.

It seems well that a physician should have had some experience with slow-acting insulin in uncomplicated diabetes before attempting its use in conjunction with unmodified insulin for critical complications of the disease. Rapid changes in the patient's need for insulin (due to "insulin resistance" created by infection)[45] must be followed by saving the urine for analysis in periods of four to six hours and by blood glucose estimations when indicated. The following case report exemplifies the combined use of the insulins in the presence of infection.

*"Insulin Retard" refers to the original protamine insulin as marketed in England.

CASE REPORT

Mrs. O. G. E., an obese white female, 56 years old, was admitted to the hospital September 6, 1938. Six months earlier it had been discovered that she suffered from diabetes mellitus. As her weight was 212 pounds, a reducing diet of P 40 gm., F 20 gm., and C 50 gm. had been prescribed. Thirty-five units of protamine zinc insulin had been adequate for satisfactory control at the time of her first medical treatment. Two weeks before her present admission she had noticed a small "pimple" on her back. This lesion gradually grew larger until a carbuncle formed. Marked glycosuria reappeared and her insulin dosage was increased to 45 units of PZnI daily by her family physician. In spite of this the glycosuria persisted and the carbuncle rapidly grew larger.

At her admission an indurated, hot, slightly elevated, reddish purple area, about ten inches in diameter, was found in the lumbar area of the back. There was an odor of acetone on her breath. Urinalysis showed the excretion of 29 grams of dextrose in 24 hours and a moderately strong acetone reaction.

The patient was placed on a diet of P 80 gm., F 75 gm., and C 100 gm. which was reduced on her third hospital day to P 80 gm., F 75 gm., and C 75 gm. Both PZnI and RI were given as indicated in the graph of Figure III. She was given 200 röentgens of Röentgen ray over the area of the infection on the first and third hospital days. Two weeks later the necrotic tissue was pared out leaving a wound ten inches in diameter and two inches deep, extending into subcutaneous fatty tissue. By the first week in October the wound was filled with granulation tissue, still discharging a moderate amount of pus. The patient's temperature, originally 102.6 degrees Fahrenheit, became normal after excision of the carbuncle. The urine was free of acetone on the third day and free of dextrose on the sixth day in the hospital. It is interesting to notice that during the height of the patient's infection, 210 units of insulin each day were necessary to prevent glycosuria. As the influence of the infection subsided, 40 units of insulin became sufficient.

This is a striking example of the peculiar phenomenon of insulin resistance accompanying infection. More than six times the amount of insulin normally required was necessary to

control this patient's blood sugar during the height of her infection. With removal of the necrotic tissue and diminution in the intensity of the infection, the need for insulin approached the previous value.

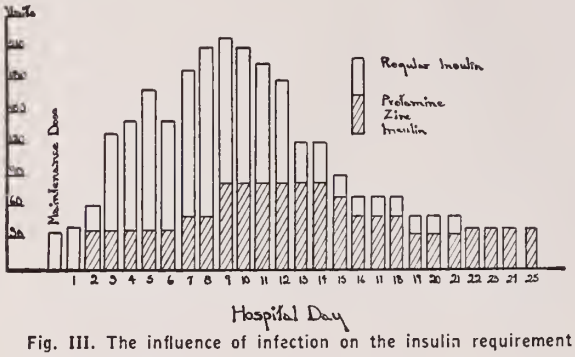

Fig. III. The influence of infection on the insulin requirement of a diabetic patient.

Jordan[30] and Ricketts[22] report a few patients who discontinued PZnI because of local reactions, such as redness, swelling, pain and tenderness, at the site of injection. One patient in our experience has reported the same complaint.

DIET

The consideration of a moderately low versus a high carbohydrate diet for the individual patient is not greatly influenced by the advent of slowly acting insulin. In using a liberal carbohydrate diet, obviously more insulin is required; and in severe diabetes, the PZnI must be supplemented by one or more doses of the soluble (regular) insulin to eliminate postprandial hyperglycemia and glycosuria. Hagedorn's group of patients, in his original clinical studies, received about 100 grams of carbohydrate daily.[4 35] If we exclude the excessively obese patients who were placed on low caloric diets to enforce a loss of weight, we find the daily carbohydrate intake of our group is about 140 grams. By and large, patients on diets moderately low in carbohydrate and relatively high in fat have lent themselves more readily to treatment with the single daily dose of PZnI than have patients on other arrangements of diet.[13 26]

A proper distribution of the daily quantity of carbohydrate is of definite importance for the successful use of PZnI. One-fifth of the equivalent glucose value is to be preferred for breakfast, two-fifths for lunch and two-fifths for the evening meal. By this arrangement, most of the carbohydrate is available in the body at the time of the expected maximal action of the PZnI. If midnight or early morning reactions are anticipated, both the physician and the patient should keep in mind the usefulness of a small amount of food taken at the hour of retiring for the night.[43] In practice, one finds that the diet need not be redistributed at all when the patient requires a small dose (20 units or less daily) of insulin.

TIME FOR INJECTION

The patient should be cautioned to shake the vial of PZnI in order that the precipitate may be distributed evenly before the required dose is withdrawn. Regular insulin should not be mixed in the same syringe with PZnI nor should the two be injected into the same site.[13] Early morning is commonly agreed to be the best time for the injection of the daily dose of the new insulin.[13 39] This has two primary advantages: (1) The maximum insulin action coincides fairly well with the largest carbohydrate meal of the day for most Americans, i.e., the evening meal. (2) In such an arrangement, a single morning specimen of urine (taken soon after arising) is a reliable guide to dosage. If this specimen contains no sugar, the danger of hypoglycemia is to be watched for; if sugar is present, the dosage for that day may be slightly increased with perfect safety.[13] A patient with a fair understanding of his disease has, in this way, a minimum of inconvenience, particularly if he requires but a single dose of PZnI daily.

CONCLUSIONS

With the improvement of the therapy available for the diabetic patient, the profession is not approaching standardization. Standardization in this field is not desirable except to the extent that our knowledge of the underlying misbehavior in metabolism should be standard and widely accepted by those attempting to treat diabetes. Treatment

must be varied and applied to the individual patient for a successful outcome. Hagedorn felt that "when the treatment with ordinary insulin gives satisfactory results, the use of protamine insulinate is of no special value."[3]

The diabetic person is affected by extrinsic and intrinsic factors which change his carbohydrate "burning" ability from day to day.[25] Physical exercise promotes hypoglycemia in a patient during one afternoon, and rest and inactivity twenty-four hours later allows a glycosuria under the same diabetic management. In the presence of hyperthyroidism, active hepatic disease or ephemeral emotional disturbances, exasperating variations in the patient's metabolism call for the best of the physician's art in the individualization of therapy.

SEVERE DIABETES

We have more constant and continuous control of the carbohydrate metabolism, fewer injections in severe diabetic patients, and generally lower dosage with protamine zinc insulin. The occurrence of hypoglycemic reactions has been markedly decreased by the use of the new preparation. Its advantages seem definitely to outweigh all disadvantages for the typical diabetic patient. Only further experience can inform the profession of what, if any, influence the new preparations have on degenerative changes in the body, such as arteriosclerosis of the heart, extremities and kidneys. These factors may be benefited or may continue to be serious hazards in the life of such patients. The diabetic man or woman can rejoice that there are now but two real restrictions in daily life: (1) Strict adherence to the diet, and (2) the regular use of the required protamine zinc insulin each morning.

With the beginning of the Hagedorn Era, it is to be hoped that the diabetic patient may move more closely to the ideal, healthy existence which is reasonable to expect for him. One of the marks of the inertia of society has been seen in the disparity between the highly useful scientific assistance available for diabetes mellitus, and the deplorably poor care which the majority of these patients have received.[48]

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MUSCULAR FATIGUE

Elimination of useless movements is one essential factor in minimizing muscular fatigue, Ellen Kelly, Norman, Okla., observes in the July issue of *Hygeia*.

This factor, she points out, makes possible relaxation of those parts of the body not needed in the activity, thus conserving energy for the vital part of the movement.

A second important element in efficient performance of activity, and consequently in retarding the onset of fatigue, is expansion of the lungs in breathing. The person with a flexible chest is able to expand the lungs deeply and thus offer greater oxygen supply for the blood when the exertion demands it. Habitually sitting in a slumped position and leading a sedentary life in general is anything but conducive to a good chest expansion. It is obvious that greater oxygen is available to the lungs if one's exertion takes place in the open air, rather than in poorly ventilated quarters.

A good conduit system is also necessary to carry the oxygen supply, once it is taken up by the blood, to all the muscles and organs and to remove the waste products of activity. This means a good circulation, and circulation is dependent to a large extent on heart action. Like other muscles, the heart becomes strong when used. Frequent exercise, gradually increasing in severity and duration, is the best means of training the heart to function properly.

"It has been said," Miss Kelly states, "that 85 per cent of the energy of the body is required merely for maintenance purposes—just to keep the breath of life in us. The remaining 15 per cent is used in the accomplishment of work. When one has burned up his 15 per cent energy and arrived at the point of fatigue, one should rest. It is then, however, that temptation to borrow from the 85 per cent energy needed for organic maintenance occurs, with the postponement of resting. This can be done, but it is dangerous, for the debt is seldom paid back. And organic development, especially during the growing years, may suffer from the unpaid debt. If one is to avoid this borrowing policy, he must stop activity when the fatigue point is reached and rest until the physiologic functions of the body have caught up.

THE SIMULTANEOUS OCCURRENCE OF SPONTANEOUS HYPOGLYCEMIA AND JUVENILE TABES*

(Case Report)

By D. C. ASHTON, M. D.
Beckley, West Virginia

THE syndrome of spontaneous hypoglycemia is well known, having been first reported by Seale Harris[1] in 1924. Since his initial description of this condition, many articles have appeared in the literature and much additional information has accumulated. The fact that tabes dorsalis occurs in childhood has been known for many years, but from information available, we have been unable to find any record of a case in which spontaneous hypoglycemia and juvenile tabes occurred simultaneously.

The following is a report of a case which apparently illustrates these two phenomena:

H. L., a girl of 14, was admitted to the Beckley Hospital on April 11, 1938. The parents of the girl stated that for several months she had had convulsive seizures occurring several times a day. The manifestations of these convulsions varied from "crying spells" to clonic convulsive seizures involving the head, arms and legs. The patient had a voracious appetite and seemed constantly hungry. The family history revealed that the mother has had ten children, the subject being the seventh. The eighth child was stillborn. Shortly after the patient's birth, the mother and father were both discovered to have positive blood Wassermann reactions and each received some antiluetic treatment.

Development and nutrition were about normal. The temperature, pulse and respiration were normal. Height, four feet and ten inches; weight, 84 pounds. She was quite restless and talkative but seemed well oriented and appeared to have normal intelligence. Physical examination was essentially negative except for gingivitis, Arygll Robertson pupils and absent knee jerks. There was no loss of vibratory sense and no definite ataxia. The urine was alkaline, albumin negative, sugar negative, microscopic negative. Examination of the blood showed 4,840,000 erythrocytes, 100 per cent hemoglobin, 8,500 leucocytes, 76 polynuclear, 18 lymphocytes, two large mononuclears and four eosinophiles. The spinal fluid was under normal pressure. There were eight cells per cubic millimeter. Spinal fluid sugar was 50 mgs. per 100 ccs. The spinal fluid Wassermann was strongly positive and the blood Wassermann was also strongly positive. Glucose tolerance tests were done on the 14th and the 16th. Results are shown in the accompanying table. As will be seen from the blood dextrose figures, the readings were all very low even after the ingestion of the 100 gms. of glucose. In fact, the blood sugar determinations in every instance were all below what is usually thought of as the "convulsive level." The second glucose tolerance test was done two days after the first, after the patient had been given a very high carbohydrate diet with feedings between the regular meals for the two day period. In spite of the high carbohydrate feeding, no appreciable influence was noticed in the blood sugar levels.

Antiluetic therapy was started during the period of hospitalization and while here she received three intravenous doses of mapharsen (.02 gms.) at five day intervals. No appreciable change was noticed in the patient's condition while in the hospital. She continued to have "crying spells" but did not have any definite convulsive seizures. She was in the hospital fourteen days and at the expiration of that time the parents insisted on taking her home with a promise to return. The family doctor was asked to continue antiluetic therapy at home. Thus far the patient has not returned for further study and all efforts to locate her have been unavailing.

*Read before the Beckley Hospital Staff, April 14, 1938.

THE AUTHOR

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SUMMARY

The above case presents features of juvenile tabes dorsalis and spontaneous hypoglycemia existing concurrently, and inquiries at the Surgeon General's and American Medical Association library revealed that no similar case could be found in their records at this time. Much literature on the neurological aspects of dysinsulinism is available but the reports as studied have reference to abnormalities of the central nervous system brought about by hyperinsulinemia or hypoglycemia. Such disorders as convulsions, transient hemiplegias, hemiparesis and personality disorders have all been described as resulting from hyperinsulism but no mention has been made of tabes dorsalis as a coexisting disorder as far as we are able to learn. Neither have we been able to find any evidence of central nervous system syphilis producing a constant lowering of the blood dextrose.

The removal of the patient from the hospital interfered with our plans for further observation. It was planned first to institute vigorous antiluetic therapy and later to have an exploratory operation done in the hope of finding and removing a tumor of the Islands of Langerhans. Even in its unsolved state, however, the problem is an unusual one and offers opportunity for much speculation. It is unfortunate that we were unable to inspire the family with sufficient cooperative spirit to enable us to make other investigations.

GLUCOSE TOLERANCE TESTS

	Date	4-12-38	4-14-38
	Fasting Blood Sugar Mgs/100 cc	20	25
After Ingestion 100 gms. Glucose	One Hour	25	34
	Two Hours	28	40
	Three Hours	35	38
	Fasting Urine Sugar	0	0
After Ingestion 100 gms. Glucose	One Hour	0	0
	Two Hours	0	0
	Three Hours	0	0

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INCREASING LIFE EXPECTANCY

The increasing life expectancy of the American people may have a profound influence on national thought, expressing itself in a more mature national mind, *The Journal of the American Medical Association* for June 24 points out editorially. *The Journal* states:

"The life expectancy at birth in such countries as the Netherlands, Switzerland and New Zealand is slightly greater than that in the United States. In several of our northern states, however, the figures reflect a better experience than that recorded in most foreign countries. The explanation appears to lie in the much lower life expectancy among Negroes, a fact which tends to distort the conclusions which might be drawn from examination of only the comparative gross statistics. There is no doubt, therefore, that the life expectancy of the white population of the continental United States is as long as or longer than that of any other country in the world, although that of Negroes is disturbingly out of proportion.

"The control of the communicable diseases has been the most important factor in increasing average longevity; in fact, except for tuberculosis and for pneumonia, infections have been almost eliminated as factors of importance so far as the death rate is concerned. For tuberculosis there has been a decrease in the average death rate since the decade from 1856 to 1865 of more than 90 per cent. With better understanding of the epidemiology and the social and individual factors involved in the spread of this disease, tuberculosis as a cause of death will probably recede still further in importance.

"For pneumonia, the record has not been as good as for tuberculosis. From an average death rate of 107 per hundred thousand of population in 1856-1865 the decrease is only to 96 per hundred thousand of population in 1936. Today, however, with increased knowledge of causes of disease, of epidemiology, of diagnosis and especially of newer forms of treatment, a relatively short span of years should remove pneumonia from its exalted position as third among the causes of death."

TREATMENT OF TRANSCERVICAL FRACTURE OF THE HIP WITH THE SMITH-PETERSEN NAIL*

By CHAS. C. GARR, M. D.
Lexington, Kentucky

INTERNAL fixation of central fractures of the hip is no new procedure. Nicolaysen, a Swedish surgeon, nailed hips through the skin in 1878. Schilling, in 1915, used a square nail by subcutaneous blind nailing. Dr. E. Denegre Martin used blind fixation with two three and one-half inch screws prior to 1924. Dr. George Hendon of Louisville used beef bone keys in 1928. Smith-Petersen, in 1931, described his open reduction and the use of the three-flanged nail. In 1932 Johansson introduced the Smith-Petersen nail cannulated. Since then the literature teems with description of various types of devices for internal fixation—wires, screws, pins with bolts, etc. It is not the purpose of this paper to go into the merits of the different types of internal fixation of the neck of the femur but to confine my remarks to my own personal experience.

If the condition of the patient warrants, I think the nailing operation should be done as soon as possible after the injury. I do not agree with Lawson Thornton of Atlanta, who advocates nailing them first and treating them later. I have successfully nailed fractures that were two and three weeks old. It is imperative to have a good portable x-ray unit in the operating room with dark room close by. The technique of the operation is as follows:

The patient is anesthetized, preferably with gas-oxygen and then the fracture is reduced. I prefer the Ledbetter method which consists of flexing the thigh to a right angle with the knee flexed at a right angle. Then, with a lifting pull on the thigh, the leg is brought gradually down with 20 degrees internal rotation and 40 degrees abduction. An orderly holds the foot with the leg in this position and an x-ray film is made, in both the anteroposterior and lateral views. A lead marker is placed over the femoral artery as it passes under Poupart's ligament as this point is directly over the head of the femur.

This reduction is so simple that it is our practice to prepare and drape the patient at this time, and while the film is being developed the surgeon and assistant scrub. If the reduction is satisfactory, an incision four to six inches in length is made over the trochanter downward on the lateral aspect of the thigh. The length of the incision depends on the thickness of the subcutaneous fat. The vastus externus muscle is divided and the bone exposed. A three-thirty-second inch Steinman pin is now drilled from a point just below the trochanter major and directed at the previously placed lead marker. It is drilled in about two and one-half inches, the retractors, drills and unnecessary instruments are removed, the wound covered with towels, and an x-ray film is exposed in both anteroposterior and lateral views. If the x-ray shows the direction of the Steinman pin to be correct, it is drilled on in approximately three and one-half inches. If the direction is wrong, the pin is withdrawn and reinserted or another pin is placed along side of it, using the first to help in the direction of the second. When the guiding pin is properly placed,

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*Read before the Annual Meeting of the Association of Surgeons of the Chesapeake and Ohio Railway Company, White Sulphur Springs, West Virginia, November 12, 1938.

the Smith-Petersen nail is threaded over it and driven into place. The wound is then closed and no external fixation used.

I have completed the operation in twenty-five minutes, when everything went smoothly, and in one case, when everything seemed to go wrong, it took one hour and five minutes. There has been no postoperative shock in any of my cases.

From June 2, 1937 to October 13, 1938 I have nailed twenty-four hips. There were five males and nineteen females. Bony union was obtained in thirteen cases of eighteen in which sufficient time has elapsed (72 plus per cent). In two cases no subsequent x-ray could be obtained, hence they have been omitted. Four cases are too recent to include. Of the eighteen cases two have shown no union after three months' duration—one with no absorption of the neck and one with absorption. I am hopeful that time will show sufficient calcium deposit to obliterate the fracture line. There were no cases of infection in the wound.

The death rate has been higher than I like —six out of the twenty-four (28 plus per cent) have died:

One cardiorenal death—two months following operation.

Two pulmonary embolus—one and two weeks postoperative.

One coronary occlusion—one day postoperative.

One cerebral hemorrhage — thirty-three days postoperative.

One general debility—four weeks postoperative.

The two pulmonary embolus cases, I think should be charged against the operation, but I have had three pulmonary embolus deaths in cases treated in plaster casts, according to the Whitman method.

By the use of internal fixation, the patient is much more comfortable, and the hospital stay is from one to two weeks. After the first week the patient may be put in a wheel chair with the utmost comfort, and after three to four weeks is usually able to get in and out of bed without assistance.

Name & Age	Complications	Result	Cause of Death; Date
Coyle (86) 6-2-37	Decubiti. Fracture 7 Days Old	Bony Union.	Cardio-Renal 8-5-37
Kiser (72) 9-30-37	None	Bony Union 12-28-38.	
Dennison (17) 10-11-37	Fracture Pelvis. Perf. Vagina. Put in Plaster 9-2-37	No Subsequent X-ray but is Working and Dancing.	
Webb (59) 10-19-37	None	Bony Union 12-28-38 One-half inch shortening.	
Peter (71) 11-1-37	None	Bony Union 1-6-38.	
Carr (78) 11-8-37	None	No Subsequent X-ray.	
Daugherty (67) 11-6-37	Phlebitis 1-38	Bony Union 10-7-38.	
Woodard (64) 11-11-37	Fat Liquefaction	Bony Union 1-17-38.	
Downs (80) 11-11-37	Two Weeks Old. Decubiti.	Died 2 Weeks After Leaving Hospital.	
Lane (60?) 12-9-37	None	Bony Union 10-10-38.	
Carmichael (63) 12-30-37	None	No bony union. Not good apposition. Walks Without Pain. 3-19-38.	
Fulgentia (66) 1-8-38	Pneumonia Before Oper. 12-18-37.	Bony Union 3-16-38.	
Welch (62) 1-17-38			Pulmonary Emb. 1-24-38
Regan (75) 3-10-38	Cardiac Disease		Coronary Occ. 3-11-38 Aut.
Garey (55) 5-4-38	None	Bony Union 10-25-38	
Trimble (85) 5-27-38	Coronary Attack	Partial Bony Union 8-4-38	
Jeffry (63) 7-13-38	Arthritis	No Union; No Absorption 10-26-38.	
Harting (65) 7-16-38	Arthritis Both Hands & Knees	Partial Absorption of Neck. No bony union 11-2-38.	
Coyle (55) 8-1-38	None	Bony Union 10-31-38.	
Price (74) 8-5-38	Hemiplegia Two Years Before. Prostatitis. Fracture 2 weeks old	No Subsequent X-ray.	
Smith (69) 8-26-38	None	No Subsequent X-ray.	
Sheenan (69) 9-20-38	Phlebitis Both Legs 9-25-38. Apoplexy 10-23-38.		Cerebral Hem. Autopsy
Perkins (65) 10-11-38	Had Had Previous Stroke.	Too Recent To Say.	
Hundley (75) 10-13-38	Gastric Hem. Diabetes.		Pulmonary Emb. 10-28-38 Aut.

The average age of my patients was 66.8 years—and excluding the 17 year old girl, the average age is 69.

I have been so pleased with the comfortable convalescence in these cases that I would gladly choose the operation if I were unfortunate enough to sustain a central fracture of the hip.

In conclusion I wish to emphasize that the operation is no minor procedure. It must be done accurately, speedily, and with meticulous asepsis.

Lexington Clinic. 190 N. Upper St.

PNEUMOCOCCAL MENINGITIS TREATED WITH SULFAPYRIDINE AND SPECIFIC SERUM *

(Case Report)

By I. D. COLE, M. D., F. A. C. S. and E. F. HURTEAU, M. D.
Clarksburg, West Virginia

CASE number 2535-T, patient aged eight years, was admitted to St. Mary's Hospital, Clarksburg, West Virginia, on May 11, 1939. Died May 21, 1939.

Present Illness: The onset of the right otalgia was evident at least two weeks before the patient was admitted to the hospital. The pain gradually increased in intensity. The week preceding our observation of the patient there was some tinnitus, vertigo and moderate left otalgia. Otorrhea was not evident.

Forty-eight hours before admission to the hospital, the patient began to complain of diffuse headache, most marked in the occipital and frontal regions. During the twenty-four hours preceding admission, the patient vomited several times and a progressive rigidity of the neck and lower extremities was noted. There was a moderate hyperesthesia about the thighs.

Past History: Internal strabismus had been present since birth.

Family History: There was a simultaneous onset on April 27, 1939 of otalgia in two siblings followed by a spontaneous drainage and an uneventful recovery.

Physical Examination: The patient was a well developed, emaciated, eight year old white male. He was restless, resistive and slightly irrational. There was a marked internal strabismus. Both pupils were dilated but equal and reacted to light and accommodation. Cervical rigidity was marked. Legs and thighs were flexed but no opisthotonos was present. Kernig's and Brudzinski's signs were positive. The deep reflexes were hypoactive throughout and there was a marked hyperesthesia over both lower extremities. There were no motor irritative or paralytic findings and no petechiæ. The right ear drum was bulging but there was no evidence of mastoid tenderness.

THE AUTHORS

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Dr. Everett F. Hurteau, Clarksburg; graduate State University of Iowa College of Medicine, 1937; interned Baltimore City Hospitals.

Laboratory Findings: Lumbar puncture revealed a slight increase of pressure and a normal Quackenstedt response. The cerebrospinal fluid was moderately cloudy. The protein was increased and an absence of sugar was noted. The differential count was 75 per cent polymorphonuclears and 25 per cent lymphocytes. Smears, cultures and typing proved that Type III pneumococcus was present.

There was found a blood leukocytosis of 38,700, with 98 per cent polymorphonuclears. The hemoglobin was 78 per cent.

Treatment: A right myringotomy was done and a moderate amount of pus was released. The smears and cultures made from this pus were negative. Spinal drainage was repeated at intervals of twelve to twenty-four hours. The chemistry of the cerebro-

spinal fluid remained unchanged. The cells and bacteriological examinations varied as shown on the accompaning chart. The differential counts varied from two per cent polymorphonuclears on May 15, 1939 to 90 per cent on May 21, 1939. There was always a fair Quackenstedt response. A normal pressure was noted except upon our first observation of the patient and just preceding death.

The blood cultures were repeatedly negative. Leukocytosis varied however from 14,100 on May 15, 1939 to 35,800 on May 2, 1939.

MEDICATION

Medication: Our medication consisted of sulfapyridine in seven to ten grain doses, repeated at four hour intervals from May 12, 1939 until May 19, 1939. We used twenty thousand units of Type III antipneumococcic serum (rabbit) as a treatment unit. This serum was given intraspinally and intravenously as indicated on the accompanying chart. We gave the patient 350 cc. citrated blood on May 20, 1939. He was given adequate fluids. We administered ten five cc. intramuscular injections of prontosil which apparently had no influence on the course of the case.

Results: Clinically the child showed progressive signs of meningeal irritation during the first forty-eight hours. Opisthotonos and retraction of the neck became marked. There was incontinence of bowel and bladder, deepening of coma and persistent vomiting. Following the first two doses of serum the patient showed rapid improvement. Vomiting and incontinence completely subsided and he was lethargic but rational. Opisthotonos became less marked and the Kernig's sign was only moderately positive, but retraction of the neck continued. On May 18, 1939, an abscess in the lumbosacral region was incised and drained of two ounces of pus. Smears and cultures from the abscess were identical with those previously made from the cerebral spinal fluid. Apparently this abscess had no appreciable bearing upon the later developments.

The exacerbation of hyperpyrexia was not accompanied by a corresponding recurrence of clinical findings. The patient continued to be quite rational. The retraction of the neck was the only indication of meningeal irritation. Hydrocephalus, brain abscess, localized meningitis, acute serous meningitis, and fistulous communication between the subarachnoid space and the soft tissue abscess were considered at this time as an etiology of the persistent findings. At no time was there an increase in the cerebrospinal fluid sugar or localizing signs. Ophthalmoscopic examination of the eyes were repeatedly negative.

There was a sudden recurrence of opisthotonos on May 21, 1939, along with a sudden rise in temperature. The patient became irrational and resistive. There was also a concurrent sudden increase in the cerebrospinal pressure, in the number of cells, and in the bacteria present in the cerebrospinal fluid. Twelve hours later there was an onset of signs of pulmonary edema which progressed rapidly. Death was preceded by several generalized convulsions.

Autopsy: The autopsy revealed that there was no communication between the soft tissue abscess in the lumbar region and the spinal canal. There was neither a brain abscess nor a mastoiditis. The entire subarachnoid space was filled with turbid fluid. There were many adhesions and a thick exudate over the base of the brain. None of the organs of the body showed degenerative disease or evidence of injury from medication.

CONCLUSIONS

Comment: Treatment with pneumococcal serum was delayed occasionally due to the fact that the serum had to be transported from Pittsburgh. The serum was used as charted. When on May 18, 1939 it was found that the cerebrospinal fluid was apparently sterile we thought that the meningeal reaction might be due to the antipneumococcic serum which we had given the patient. The

sudden contamination of the spinal fluid on May 21, 1939, however, indicated that in reality there must have been a block. We surmised that the serum given intraspinally had not reached some areas of localized meningitis but had successfully sterilized all fluid examined from the lumbar puncture. This was later verified by the autopsy. It is difficult to determine the value of sulfapyridine. One might theorize that this case lends support to the conception that sulfapyridine "inhibits the growth of pneumococcus." This was indicated by the initial fall in the temperature on May 12, 1939. "Ultimate recovery" and "phagocytosis" however are said to depend on the "patient's ability to develop specific antibodies." In this case we might conclude that the latter was impaired and that a more complete remission was facilitated by administration of these antibodies.

The exacerbation might have been prevented had the pneumococcal serum been continued until the cerebrospinal fluid was sterile. The pneumococcic serum was discontinud on May 14, 1939 for one day to determine if sulfapyridine alone would be effective. The sulfapyridine was discontinued on May 19, 1939 as it was having no apparent effect in retarding the disease. The fatality might have been prevented, in spite of the exacerbation, had the pneumococcic serum been given intracisternally as well as intraspinally.

321 W. Main St.

ORANGE JUICE RETAINS VITAMIN C

Fresh orange juice loses little vitamin C potency on standing in a refrigerator over night if the juice is kept in a covered container to avoid access to air, *The Journal of the American Medical Association* for July 22 states.

Experiments have shown no appreciable loss of the vitamin in orange juice stored for twenty-four hours in loosely covered jars in a refrigerator at temperatures of approximately 40 to 45 F., i. e., safe refrigeration temperatures.

Other experiments have given evidence that fresh orange juice retains as much as 97.6 per cent of its vitamin C activity after storage for twenty-four hours in a loosely stoppered flask in a refrigerator.

Tuberculosis Abstracts

Furnished Through the Courtesy of the West Virginia Tuberculosis Association

What is the physician to think when the x-ray examination and the tuberculin test do not confirm each other? Dr. Esmond R. Long, director of the Henry Phipps Institute in Philadelphia, discusses this situation in an editorial in the April, 1939 issue of the *American Review of Tuberculosis.*

TUBERCULIN ANERGY AND THE VARIABILITY OF TUBERCULINS

The question of anergy to tuberculin in the presence of presumptive tuberculosis has been the subject of much recent discussion. Especially noteworthy have been the carefully conducted and concisely reported studies of Lumsden, Dearing, and Brown on tuberculosis infection in school children in Coffee County, Alabama and Giles County, Tennessee which were reported recently in the *American Journal of Public Health.* These investigators compared the incidence of positive reaction to several different kinds of tuberculin, in relation to the incidence of lesions diagnosed as tuberculosis in x-ray films, and found not only a lack of correlation between the tuberculin reaction and the presence of shadows in the x-ray film interpreted as representative of tuberculous lesions, but a wide discrepancy in the percentage of positive reactions to different samples of tuberculin. The lack of correlation between tuberculin reaction and x-ray examination was most conspicuous in the case of films showing shadows interpreted as calcified lesions of primary tuberculosis.

SIGNIFICANCE OF CALCIFICATIONS

Numerous observers have noted the absence of tuberculin allergy in cases with presumptive evidence of old tuberculous infection in the form of calcified intrathoracic masses with the frequency of negative reaction in the presence of pulmonary calcifications ranging from 17 to 46 per cent in different series in the hands of different observers.

These various studies have provoked widespread comment. It is not the fact that allergy may be absent in the presence of calcified lesions that is surprising, but that this may occur so frequently. Failure of reaction in the presence of calcified nodules is an old observation familiar to all workers in the field. In passing, it may be noted that in the first article published on the use of the purified

(Continued on page xxv)

President's Page

We believe it can be said that the White Sulphur Springs meeting was an outstanding success in every regard. The scientific program, representing almost every field of medicine, was one of the best we have ever had.

An important new committee to promote postgraduate education was created which will, after careful study, arrange for postgraduate teaching in all branches of medicine.

A number of most important Association problems were settled at the White Sulphur Springs meeting. I refer particularly to the action of the House of Delegates regarding the report of the Low Cost Study Committee, and in regard to representation in the House of Delegates itself. The action on the Low Cost Committee's report creating a Medical Service Committee for further study and "permitting" the establishment of optional county or district prepayment insurance plans, under the guidance of this committee, was taken after the most thorough discussion and consideration, and apparently met with final approval of a vast majority of the Association membership. The action taking away from the Council the right to vote in the House of Delegates came after several years discussion and thoughtful consideration, and was finally adopted by an almost unanimous vote.

It is encouraging to feel that the Association members can consider and dispose of such important matters without rancor. No doubt, there are a few members who are not in full sympathy with the action of the House of Delegates, but who were willing to yield personal convictions in order to present a united front in this troublesome economic era.

The Association has selected an outstanding leader to guide its destiny in 1940. While Doctor Langfitt will not take office until January 1st, I pledge you that we will work together for the remainder of my term in carrying out the ideals and policies of the State Association.

On behalf of the West Virginia State Medical Association, may I extend to all of those who took part in and contributed to the success of our annual gathering at White Sulphur Springs, our most sincere gratitude.

Ray M. Bobbitt

President.

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G. G. IRWIN.....Charleston
JAMES R. BLOSS, Editor Emeritus.....Huntington

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Business Manager

Mr. JOE W. SAVAGE.....Charleston

THE WHITE SULPHUR MEETING

The seventy-second annual meeting of the West Virginia State Medical Association at White Sulphur Springs on July 10, 11 and 12, 1939, is now history. A new president was elected for the coming year, new activities were created for the Association in the fields of economics and postgraduate education, a separation was voted between the House of Delegates and Council, and White Sulphur Springs was selected again as the 1940 meeting place. We urge all Association members to read the complete convention transactions published elsewhere in this issue of the JOURNAL.

The new Association president for 1940 will be Dr. Frank V. Langfitt of Clarksburg. He was born at Morgantown and received his academic education at West Virginia University. He then enrolled at the University of Maryland School of Medicine, graduating in 1907. After his interneship, he later served two years as surgical resident at St. Agnes Hospital, Baltimore, followed by postgraduate work in surgery at Mayo Clinic, Johns Hopkins and the Cleveland Clinic.

Dr. Langfitt is widely known throughout the northern section of the state as both a surgeon and successful business man. Although he is connected with a number of industrial enterprises, he has continued at all times to maintain his surgical practice. He has served as both president and secretary of the Harrison County Medical Society and has served with loyalty and diligence on a number of State Association committees. With his combined experience in organized medicine and in business management, Dr. Langfitt is admirably equipped to assume the duties of Association president. He will take office next January first.

Two important new committees were created at the White Sulphur Springs meeting. The new Medical Service Committee is charged with the responsibility of further

President-elect, Frank V. Langfitt, M. D.

study of the problem of medical service for the indigent and low income groups, and with the further responsibility of serving in an advisory committee to county societies that desire to establish prepayment insurance plans for medical and surgical service. The House of Delegates voted at White Sulphur to "countenance and permit" the establishment of such plans by county or district societies.

The other new committee was created to promote expansion in postgraduate medical education in West Virginia. At the present time, this field is limited largely to the postgraduate refresher courses in obstetrics and pediatrics. The new committee will no doubt

study ways and means of enlarging this field to reach a much greater number of West Virginia physicians, and submit a permanent program of postgraduate education at next year's meeting.

Prior to the White Sulphur Springs meeting, all councillors and the Association treasurer were entitled to a vote in the House of Delegates. After several years deliberation and study, the delegates voted on July 11 to remove this voting privilege.

Another matter of interest was the action of the House of Delegates in giving its permission to Dr. A. B. Bowyer of Buckhannon, secretary of the Central West Virginia Medical Society, to publish a private directory of West Virginia physicians. Dr. Bowyer explained to the delegates that he hoped to publish a complete directory of all licensed doctors in the state, at a price within the range of all groups and individuals who might have need of such a directory.

We cannot close this convention editorial without commenting upon the efficient and impartial manner in which our Association President, Dr. Ray Bobbitt, presided over all meetings of the Association and the House of Delegates. We feel that his absolute fairness and his easy informality were decided factors in a happy and successful convention. We also offer our hearty commendation for the brilliant scientific program, for the excellence of the committee reports, and for the cooperative and understanding manner in which the delegates and councillors dispatched their difficult work.

The 1938 membership registration was 380. The 1939 membership registration was 388.

COMPENSATION FEES

Probably within the next month or six weeks a conference will be held between the Association's Compensation Advisory Committee and the Workmen's Compensation Department relative to a revision and adjustment of present compensation fees for medical and surgical service. Experience during the past few years has demonstrated that an adjustment of fees is desirable for a number of surgical procedures which are not in proper proportion to the general fee schedule.

The announcement of a proposed revision of compensation fees does not mean any drastic increase or reduction in the present fee schedule. It does mean that there will probably be reductions for some procedures; increases for others. It means a general revision of those fees which are out of line.

In view of this coming conference on the subject of compensation fees, the Association's Advisory Committee will welcome suggestions and recommendations pertaining thereto. All suggestions and advice will receive the careful consideration of the committee. Communications on the subject should be sent to the Association headquarters at Charleston.

SPEAKERS' STOP SIGNAL

The Association is indebted to Dr. James L. Wade of Parkersburg for the speakers' "stop and go" light which was used by the Section on Internal Medicine at White Sulphur Springs and also before the general scientific assembly on the last morning of the convention. For those who did not see this scientific gadget in operation, it consists of a green warning light, a red stop light, and a highly effective buzzer. The switch is operated by the presiding officer. The green light warns a speaker that his time is just about up; the red light tells him that he is through, and the buzzer offers adequate competition for speakers who are inclined to ignore the red light.

Dr. Wade's contraption is a welcome adjunct to the convention armamentarium of the Association. In future years it should be a healthy discourager of verbosity. As it was donated free gratis to the Association by Dr. Wade, we express the hope that it will never prove a Frankenstein to its inventor.

DR. BITTINGER'S APPOINTMENT

Early in July, Governor Homer A. Holt announced the appointment of Dr. William Price Bittinger of Summerlee, Fayette County, to succeed Dr. Samuel A. Price, deceased, on the Public Health Council of West Virginia. Dr. Bittinger is a former president and secretary of his county medical society, he has served diligently on a number of Association committees, he has contributed a number of excellent scientific papers to the Association and to the JOURNAL, and is a nephew of his distinguished predecessor.

The JOURNAL believes that Dr. Bittinger, as an outstanding industrial physician, will be a most valuable member of the Public Health Council and we congratulate Governor Holt on this very fine appointment.

Obituaries

DOCTOR W. L. SIMPSON

Dr. William Lee Simpson, prominent Wellsburg physician, died at his home there on July 15 at the age of 64 years. Coronary thrombosis was given as the cause of death. Dr. Simpson was graduated from the University of Pittsburgh School of Medicine in 1902 and came to West Virginia in 1916, locating in Brooke County. He was an active member of the Brooke County Medical Society and was well known as an outstanding physician and citizen throughout the northern panhandle section of the state.

DOCTOR LYLE B. HART

Dr. Lyle B. Hart, Beckley pediatrician, died there on July 6, 1939, at the age of 31 years. He had been in ill health for several months.

Dr. Hart received his academic education at West Virginia Wesleyan College and West Virginia University. He was graduated in medicine from Rush in 1935 and spent two years as resident in pediatrics at the Childrens' Hospital, Denver, Colorado. He then located at Beckley early in 1938 and became a member of the Raleigh County Medical Society. During his 18 months in Beckley, he developed a wide practice and was recognized as one of the outstanding younger pediatricians of the state.

BOOK REVIEW

PAYMENTS FOR MEDICINE

Organized Payments for Medical Services. By the Bureau of Medical Economics, American Medical Association. Paper. Pp. 185. Chicago: American Medical Association, 1939.

It would stretch the imagination of a social planner to devise any scheme for the organized payment for medical services that is not described in this publication of the Bureau of Medical Economics of the American Medical Association. Several hundred plans for medical care of the indigent involving governmental support and medical society management are explained. Social Security legislation has brought about changes in medical arrangements affecting health departments, medical societies, and state and local governments. Types of plans proposed by the Farm Security Administration are described.

Industries, unions, fraternal organizations, and mutual societies provide medical benefits for their members by a variety of prepayment devices. Some 3,000,000 persons are covered by group hospitalization plans. Commercial insurance companies, are also entering this field on a large scale. Approximately $300,000,000 in cash is paid out annually by insurance companies to assist in paying medical bills.

The House of Delegates of the American Medical Association has endorsed cash indemnity prepayment plans, but has not sought to prohibit any of its component societies from cooperating with or organizing other types of prepayment for medical service provided their character is not such as to render it impossible to give good medical service.

STATE BOARD EXAMINATIONS

Medical State Board Examinations, an organized review of questions given in medical licensing examinations throughout the United States, has just been compiled by Dr. Harold Rypins, secretary of the New York State Board of Medical Examiners, and published by J. B. Lippincott Company, Philadelphia. This is the fourth revised edition and its conciseness compensates for its lack of completeness. The book is an expression of the writer's conviction that the average American medical graduate of today is well prepared for the practice of his profession and consequently there is little basis for the obvious dread with which he approaches the ordeal of the licensing examination.

CONVENTION TRANSACTIONS

Seventy-second Annual Meeting, West Virginia State Medical Association

July 10, 11, 12, 1939

COUNCIL MEETING

The Council of the West Virginia State Medical Association met in the Virginian Room of the Greenbrier Hotel, White Sulphur Springs, on Monday morning, July 10, 1939. The meeting was called to order by Dr. C. W. Waddell, chairman, at 10:35 a. m. Councillors present were: Drs. B. S. Brake, A. P. Butt, Jr., Fred E. Brammer, R. J. Wilkinson, Philip Johnson, R. J. Reed, Jr., Ralph Hogshead, Welch England, B. C. John, R. V. Shanklin, Ray M. Bobbitt, Association president; T. M. Barber, Association treasurer. Others present were: Dr. James R. Bloss, Dr. Walter E. Vest, Dr. Andrew E. Amick, and Mr. Joe W. Savage, executive secretary.

Minutes of the two previous meetings of the Council were read and approved.

The report of the secretary was read by Mr. Savage and accepted on motion of Dr. Reed.

The report of the treasurer was read by Dr. Barber and accepted on motion of Dr. Reed.

The report of the Publication Committee was read by Dr. Vest and accepted on motion of Dr. Johnson, with the sincere thanks of the Council.

Dr. Reed moved that Dr. W. M. Sheppe of Wheeling be elected to the JOURNAL Publication Committee for a term of five years to succeed Dr. C. R. Ogden of Clarksburg. This motion was seconded by Dr. England and carried.

Dr. Wilkinson presented his report as chairman of the Low Cost Study Committee. After a great deal of discussion, participated in by Drs. Bloss, England, Bobbitt, Brake, Barber, Reed, Johnson, Brammer and Wilkinson, the report was accepted and referred to the House of Delegates for final action.

Under the head of new business, Dr. Wilkinson moved that the sum of $1000 be appropriated from Association funds to be used for postgraduate work in West Virginia. At the suggestion of Dr. Waddell, the motion was withdrawn for presentation at the evening meeting of the House of Delegates.

By a unanimous vote, the Council conferred honorary membership on the following: Dr. M. B. Kelly, Wheeling; Dr. H. H. Veon, Parkersburg; Dr. J. O. Hill, Logan.

Honorary membership was conferred posthumously on Dr. C. A. Martin of Amherstdale.

The Council adjourned at 12:25 p. m. until twelve o'clock noon on July 11, 1939.

The Council met in Room 377, the Greenbrier Hotel, White Sulphur Springs at twelve o'clock noon on Tuesday, July 11, 1939.

The purpose of the meeting was to give the president an opportunity to work out the appointments on the recently created Committee on Medical Service with the councillors of the various districts. Following informal conferences with the various councillor groups, the following nominations for this committee were agreed upon to be presented to the Association House of Delegates:

One year term: Dr. R. H. Walker, Charleston; Dr. D. M. MacGregor, Wheeling.

Two year term: Dr. B. C. John, Morgantown; Dr. Eugene S. Brown, Summersville.

Three year term: Dr. James L. Wade, Parkersburg; Dr. R. O. Rogers, Bluefield.

This being the only order of business, the Council adjourned sine die at one o'clock.

JOE W. SAVAGE, *Executive Secretary.*

HOUSE OF DELEGATES

The House of Delegates of the West Virginia State Medical Association met in the auditorium of the Greenbrier Hotel, White Sulphur Springs, on Monday, July 10, 1939. The meeting was called to order by Dr. Ray M. Bobbitt, president, at 4:40 p. m. Following roll call, the minutes of the preceding meeting were approved as printed in the August, 1938 issue of THE WEST VIRGINIA MEDICAL JOURNAL.

The following reports were received and filed:

Report of the Secretary by Mr. Joe W. Savage.

Report of the Treasurer by Dr. T. M. Barber.

Report of Legislative Committee by Dr. R. K. Buford.

Report of Public Assistance Advisory Committee by Dr. G. G. Irwin.

Report of Committee on Necrology by Dr. C. O. Henry.

Report of Committee on Maternal Welfare by Dr. James R. Bloss.

Report of Committee on Child Welfare by Dr. Andrew E. Amick.

Report of Committee on Scientific Work by Dr. W. R. Goff.

Report of Low Cost Study Committee by Dr. R. J. Wilkinson.

On motion of Dr. James L. Wade, amended by Dr. Vest, the House of Delegates went into executive session with attendance limited to members of the House of Delegates, members of the State Association, the executive secretary and the official stenographer. This motion was seconded and carried. Dr. Wade was appointed sergeant-at-arms for the executive session.

Dr. James R. Bloss moved that a committee be created to be known as the State Medical Service Committee, which shall make further study of the problem of medical service for the indigent and low income groups, and which shall act only in advisory capacity to county or district medical society plans which may be created for furnishing medical and surgical service in the home, office, or hospital, on prepayment insurance bases; that the State Medical Service Committee shall consist of the acting president of the Association and six members, one from each councillor district. Each member shall be nominated jointly by the president and the two councillors in his district, and shall be elected by the House of Delegates of the West Virginia State Medical Association. The terms of these members shall be for three years, but for the first year two members shall be elected for one year, two for two years, and two for three years. Thereafter two members shall be elected each year. The committee shall elect its own chairman and shall meet at his call. All of the available data, including the studies of the Low Cost Committee, shall be placed at the disposal of this committee and of local societies which may desire to form plans for furnishing medical and surgical service to the indigent and low income groups on a prepayment basis.

The motion was seconded by Dr. J. L. Hutchison and discussed by Dr. Bloss and Dr. H. V. Thomas. The motion was then put to a vote and carried.

Dr. A. E. Amick moved that the West Virginia State Medical Association endorse the action of the House of Delegates of the American Medical Association in regard to prepayment sickness insurance of the low income group and approve the optional establishment of county society or district plans providing they are sanctioned and controlled by the county societies and that patients are given free choice of physician and hospital. After considerable discussion it was moved by Dr. W. G. Harper, seconded by Dr. Thomas G. Reed, that Dr. Amick's motion be tabled. On a rising vote the motion was tabled.

Dr. D. A. MacGregor then moved that the West Virginia State Medical Association countenance and encourage the formation of plans by the component county societies for the care of the low income group on a prepayment plan, providing such plans meet with the approval of the Medical Service Committee of the West Virginia State Medical Association. On motion of Dr. Reed, seconded by Dr. Claude B. Smith, an effort to table Dr. MacGregor's motion was lost. Dr. Raymond Sloan then moved that the words "countenance and encourage" in Dr. MacGregor's motion be changed to "countenance and permit." The amendment was duly seconded and carried. Dr. MacGregor's motion, as amended, was put to a vote and carried.

Under unfinished business Doctor Bobbitt called up the resolution introduced at the 1938 meeting to amend Section 1, Article 5 of the Constitution of the State Association. This amendment was read by the secretary as follows:

"*Be It Resolved*, That Section 1 of Article V of the Constitution of the West Virginia State Medical Association, which now reads: 'Section 1. The House of Delegates shall be the legislative and business body of the Association and shall consist of (1) delegates elected by the component societies; (2) the councillors; (3) all ex-presidents; and (4) ex-officio the president and treasurer of this Association,' be hereby amended to read as follows: 'Section 1, Article V. The House of Delegates shall be the legislative and business body of the Association and shall consist of (1) delegates elected by the component medical societies; (2) all ex-presidents; and (3) ex-officio the president.'" Dr. Wilkinson moved the adoption of the resolution, seconded by Dr. Claude Smith. On a rising vote, the motion was lost for lack of the necessary two-thirds majority.

Other pending amendments to the Constitution and By-Laws were tabled on motion of Dr. Wilkinson, seconded by Dr. Amick.

Dr. M. T. Morrison then offered the following resolution:

"*Be It Resolved,* That since one of our members wishes to prepare a West Virginia Medical Directory, that this House of Delegates go on record as approving this undertaking by our member, and further be it

"*Resolved,* That this body extend our cooperation through the office of our executive secretary for access to necessary files and reasonable assistance in obtaining essential information."

The motion was seconded by Dr. J. L. Wade, and following a brief discussion, was carried.

Dr. Amick then offered the following resolution:

"*Be It Resolved,* That the House of Delegates approve the formation of a permanent Committee on Postgraduate Medical Instruction and Health Education; be it further

"*Resolved,* That the West Virginia State Medical Association contribute the sum of $1500 annually to extend the present program, which limits the postgraduate instruction to obstetrics and pediatrics, to include other branches of medicine."

Dr. Amick moved the adoption of the resolution, seconded by Dr. Steele. Following discussion by Dr. C. W. Waddell, Dr. Waddell moved to table the motion, seconded by Dr. MacGregor. On a standing vote, the vote to table was carried.

Dr. Amick then moved that the House of Delegates approve the formation of a permanent committee on Postgraduate Instruction and Health Education. Dr. Bloss moved to amend the motion to provide for a committee of seven members, appointed by the president. The amendment was seconded by Dr. Sloan and carried. Dr. Amick's motion, as amended, was then put to a vote, and carried.

There being no further business to come before the House of Delegates, the meeting adjourned at 7:15 p. m.

The second meeting of the House of Delegates convened at 9:10 p. m. on Tuesday, July 11, 1939, in the Auditorium of the Greenbrier Hotel, White Sulphur Springs, with the president, Dr. Ray M. Bobbitt, presiding.

Following the roll call, the election of officers was the next order of business and the following officers were elected for the year 1940:

President, Dr. Frank V. Langfitt, Clarksburg; first vice president, Dr. Thomas Bess, Keyser; second vice president, Dr. A. G. Lanham, Ronceverte; treasurer, Dr. T. M. Barber, Charleston; first district councillor, Dr. J. C. Peck, Moundsville; second district councillor, Dr. C. B. Pride, Morgantown; third district councillor, Dr. L. W. Deeds, Buckhannon; fourth district councillor, Dr. Raymond Sloan, Huntington; fifth district councillor, Dr. George W. Easley, Williamson; sixth district councillor, Dr. H. L. Goodman, Ronceverte; A.M.A. delegate, Dr. Ivan Fawcett, Wheeling; A.M.A. alternate, Dr. George Evans, Clarksburg; Committee on Necrology, Dr. C. O. Henry, Fairmont; chairman, Scientific Committee, Dr. J. B. Clinton, Fairmont; member, Scientific Committee, Dr. Earl S. Phillips, Wheeling; member, Scientific Committee, Dr. J. L. Wade, Parkersburg.

Committee on Maternal Welfare: Dr. M. B. Williams, Wheeling; Dr. E. F. Heiskell, Morgantown; Dr. J. F. Williams, Clarksburg; Dr. E. J. Humphrey, Huntington; Dr. H. G. Steele, Bluefield; Dr. W. E. Hoffman, Charleston.

Committee on Child Welfare: Dr. Russell Bond, Wheeling; Dr. Carl E. Johnson, Morgantown; Dr. R. C. Hood, Clarksburg; Dr. Raymond Sloan, Huntington; Dr. H. R. Connell, Bluefield; Dr. A. A. Shawkey, Charleston.

Meeting place for 1940: White Sulphur Springs.

Dr. Russell Bailey, who on the preceding evening voted on the prevailing side, moved to reconsider the vote by which the proposed amendment to Section 1 of Article V of the Constitution was defeated. His motion was seconded by Dr. A. Spates Brady, and, after some discussion, was carried. The proposed amendment was then read by Mr. Savage as follows:

"*Be It Resolved,* That Section 1 of Article V of the Constitution of the West Virginia State Medical Association, which now reads: 'Section 1. The House of Delegates shall be the legislative and business body of the Association and shall consist of (1) delegates elected by the component societies; (2) the councillors; (3) all ex-presidents; and (4) ex-officio the president and treasurer of this Association,' be hereby amended to read as follows: 'Section 1, Article V. The House of Delegates shall be the legislative and business body of the Association and shall consist of (1) delegates elected by the component medical societies; (2) all ex-presidents; and (3) ex-officio the president.' "

Dr. R. H. Walker moved the adoption of the amendment, seconded by Dr. J. B. Clinton. After a brief discussion, the motion was carried 55 to three.

On motion of Dr. Vest, seconded by Dr. Clinton, the House of Delegates voted that within the reasonably near future an effort be made to arrange a joint meeting at White Sulphur Springs with the Medical Society of Virginia, and a special committee was authorized to confer with the Medical Society of Virginia in this regard. Dr. Oscar Biern of Huntington was named chairman of the committee and President Bobbitt announced that the other two members would be named in the near future.

Dr. Vest took the chair and received the following report from Dr. D. A. MacGregor, chairman of the Committee on the President's Address:

We have studied the message of our worthy president and wish to endorse and recommend it to the House of Delegates as a most excellent review of the growth of our Association in influence and prosperity and also as a conservative statement of the ideals and aspirations of our organization.

Specifically, we wish to endorse the four recommendations made by the president in his summary, to-wit, that we

(1) Promote in every way postgraduate instruction and scientific teaching for our members, and the adoption of a state committee to encourage and carry on this work.

(2) Educate and encourage every member to be personally responsible in our legislative program, both state and national.

(3) Create a permanent Medical Service Committee for the study of the problems of the indigent, medically indigent and low income groups.

(4) Encourage county societies to take active interest in civic betterment programs, especially those pertaining to health and physical welfare.

We, the members of the committee, take pride in the achievements of our Association as detailed by our president. We feel that we are building well, but the structure is by no means complete. We should proceed cautiously and conservatively, profiting by constructive criticism from within and from without.

Oh wad some power the giftie gie us
To see oursel's as others see us.

The report was accepted on motion of Dr. P. A. Tuckwiller and President Bobbitt resumed the chair.

Dr. Bobbitt placed before the House of Delegates his nominations for the new Medical Service Committee created the preceding evening. His nominations were as follows:

One year term: Dr. R. H. Walker, Charleston; Dr. D. A. MacGregor, Wheeling.

Two year term: Dr. B. C. John, Morgantown; Dr. Eugene S. Brown, Summersville.

Three year term: Dr. James L. Wade, Parkersburg; Dr. R. O. Rogers, Bluefield.

On motion of Dr. Brammer, these nominees were elected to the Medical Service Committee for the terms indicated.

Dr. Bobbitt also announced the new Committee on Postgraduate Medical Education as follows:

Dr. A. E. McClue, Charleston; Dr. A. C. Woofter, Parkersburg; Dr. D. C. Ashton, Beckley; Dr. F. R. Whittlesey, Morgantown; Dr. R. D. Gill, Wheeling; Dr. Wm. R. Laird, Montgomery; Dr. George M. Lyon, Huntington, chairman.

On motion of Dr. C. O. Henry, the House of Delegates authorized the appointment of a committee of three members to confer with the State Teachers' Association on ways and means of better disseminating useful information about venereal diseases, tuberculosis, alcohol and habit forming drugs, among the pupils of our public schools. On motion of Dr. Clinton, seconded by Dr. T. M. Hood, the motion was put to a vote and carried.

On motion of Dr. Vest, the House of Delegates adopted a resolution urging upon Congress the necessity for prompt and adequate appropriations to provide for a suitable fireproof building to house the Army Medical Library and Museum.

A second resolution was presented by Dr. Vest condemning in toto the Wagner Bill and urging the senators and representatives from West Virginia to use their votes and influence against the enactment of the Wagner Bill. The resolution recognized the existence of a definite need for action and urged that this need be met by legislation along the lines laid down by the House of Delegates of the American Medical Association. Dr. Vest moved the adoption of the resolution, seconded by Dr. J. B. Clinton, and carried.

Dr. Fred E. Brammer moved that the Association Committee on Constitution and By-Laws study the Constitution and By-Laws of the Association during the year and take steps to correct any discrepancies that might appear therein. This motion was duly seconded and carried.

There being no further business to come before the House of Delegates, the meeting adjourned at 11:30 p. m.

JOE W. SAVAGE, *Executive Secretary.*

REPORT OF SECRETARY

As the reports of the various special and standing committees of the Association will cover most of the Association's activities during the past year, my own report will deal largely with membership and finance.

At the annual meeting last year the Association had 1,148 members as compared with 1,242 members at the present time. This is an increase of 94 members during the year. At last year's convention we had 67 delinquent members and this year we have 65.

County medical societies that deserve honorable mention for having all their members paid up and in good standing include: Central West Virginia, Doddridge, Eastern Panhandle, Hancock, Marshall, Mason, Mercer, Potomac Valley, Preston, Taylor, Wetzel and Wyoming County. Excellent increases in membership have been made by Fayette, Kanawha, Harrison, McDowell, and Parkersburg societies. This year's total increase of 96 members is probably the largest annual increase the Association has ever had.

The actual assets of the Association have decreased $318.13 for the fiscal period ending April 30, 1939. These assets now amount to $32,895.93. This is represented as follows:

Cash in Bank	$12,964.76
Property Account	8,442.57
Annuity Contract	2,838.60
Nicholson's Policy	8,650.00
Total	$32,895.93

Under instructions from Dr. Ray Bobbitt, president, we have recently invested approximately $5,000.00 out of the JOURNAL checking account in United States Government Postal Savings Bonds.

It might be pointed out that the decrease in assets is probably accounted for by a number of nonrecurrent expenditures, including sewer tax and the laying of the sewer on the Nicholson property last August, which cost $243.50; participation in legal cases involving the Kanawha, Greenbrier, and Monongalia county societies in the amount of $582.50; the purchase of automobile emblems in the amount of $170.00, which emblems were on hand at the time the audit was made; making a total of $1,096.00. In addition to this, the Association paid $1,263.25 premium on the Nicholson life insurance policy, which increased the cash surrender value of said policy only $700.00. These items are not really a part of the operating expense of the headquarters office.

THE WEST VIRGINIA MEDICAL JOURNAL enjoyed a most successful year. The actual JOURNAL profit was $1,859.64. This is represented by increased cash holdings of $1,336.84, increased surrender value of the Fidelity Annuity Contract of $352.80, and automobile emblems on hand in the amount of $170.00, making a total of $1,854.64. The increase in Association membership has brought about a corresponding increase in the JOURNAL circulation and we spent approximately $180.00 during the past year for additional JOURNAL copies to meet this increase in circulation. In addition, the JOURNAL purchased a new Addressograph machine at a cost of $170.00. Of the total Association assets, the JOURNAL has earned $14,438.39; represented by cash in the amount of $11,429.76 plus the surrender value of the annuity contract, $2,838.60. The total, $14,438.39. With possibly one or two exceptions the WEST VIRGINIA MEDICAL JOURNAL carries a larger volume of paid advertising than any other state journal in the United States.

There have been a number of interesting developments during the past year which are not covered in the various committee's reports, which will be presented to you. One of the most interesting of these developments was the ruling last year of the Public Health Council that a doctor must be a naturalized American citizen before being eligible to secure a license to practice medicine in West Virginia. Out of 124 doctors licensed in West Virginia in 1938, 115 were graduates of American schools, three of Canadian schools, five of German universities and one from a medical school in Switzerland. Since this ruling of the Public Health Council, the threat of invasion by unnaturalized foreign physicians has been practically eliminated.

The situation in regard to unlicensed quacks has been much improved in the past twelve months. Three of West Virginia's best known quacks have been chased outside our borders by vigorous and effective prosecution. The Greenbrier Valley Medical Society got rid of the famous Dr. Faith Starr who attracted wide attention in Florida several years ago, as the vitamin expert. The Kanawha Medical Society chased out Dr. Joe Bonovitch, the cancer expert extraordinary, and Katie Bunch, the hormone expert from Kansas City, who, until recently, told her field workers that she had a foolproof system that the medical profession could not touch.

The riddance of these quacks has had a wholesome effect on minimizing the activities of our few remaining charlatans in this state. Another interesting legal victory for the medical profession was won by the Monongalia County Medical Society last November 22 where the Circuit Court of Monongalia County restrained and enjoined the City of Morgantown from collecting a privilege tax against doctors and lawyers. Had the Morgantown tax been allowed to stand, it is reasonable to assume that most of our other West Virginia municipalities would have adopted similar levies. As a matter of fact, a determined effort was made by a number of municipalities to secure the enactment of a bill during the recent legislative session that would have made possible the levy of a professional tax on physicians and other professional men. Through the work of our legislative committee and a few other interested groups, this proposed bill failed of passage. The Association paid one half of the cost of the Morgantown Tax Case in a successful effort to secure an injunction against all municipal privilege taxes against the medical profession.

May I take this opportunity to again caution the doctors, as the JOURNAL has done, on occasions, against the directory racket, which has been in evidence twice during the past year. I refer to the solicitation of physicians who, for fixed prices, can have their name inserted in insurance directories and thereby theoretically secure profitable accident cases from insurance companies. This is an old swindle that frequently comes out in a new dress. The JOURNAL has exposed every directory racket that has come to its attention, but a few doctors occasionally still take the bait. They are all the same, and they are all rackets.

On two occasions recently the Association has assisted county medical societies in the establishment of non-profit community hospital insurance plans. On both of these occasions the Association not only furnished complete data and information, but also provided the services of a competent hospital insurance executive with some five years experience to assist the county society officials in drafting and setting up sound, ethical plans. This was done with no cost whatever to either county society.

It has recently come to the Association's attention that there are some lay promoters in the state who are selling hospital insurance plans to our county societies. The plans that are being sold by lay promoters are the original work of the Association which has always been freely given to persons interested in the group hospital insurance movement. We have on instance on record in which a poorly qualified hospital insurance promoter sold the Association's work to a county society and exacted five per cent of the gross income from the plan for his promoter's fee. This county could have secured the identical plan through the Association, plus the aid of the best hospital insurance talent in the state, without any cost whatever.

We would like to suggest that when county societies adopt hospital insurance plans, they do so of their own volition and without the aid of outside promoters. The Association can offer the assistance of the best hospital insurance talent in the state, together with complete information and data, at no cost to any of our constituent county societies. So, if any society desires to enter the hospital insurance field, we believe it will fare far better to utilize the service which the Association has to offer in this regard.

As the headquarters office represents the business and financial side of the Association, may I suggest that each member take a little time out during this three day session to visit our commercial exhibitors. You may recall that our exhibitors fared badly last year and it was most difficult to dispose of our available exhibit spaces for this convention. As the exhibitors each year defray a large part of the expense of our annual meetings, we feel it is good business to visit their displays and to register with those who have registration cards. If you will do this, we will be assured of a substantial exhibit income each year.

In closing, I would like to point out once more that this report does not attempt to cover all the many Association activities with which the headquarters office has been connected, but deals only with those phases of Association work which are not covered in the various committee reports. Our work during the past 12 months has been heavier than during any other similar period. It has also been more interesting. To Dr. Bobbitt, Dr. Waddell, to the various committees with which we have worked, and to the membership of the Association, I express once more sincere appreciation for the continued friendliness and cooperation toward the office with which you have entrusted me.

JOE W. SAVAGE, *Executive Secretary.*

AUDITOR'S REPORT

Dr. T. M. Barber, Treasurer,
West Virginia State Medical Association,
Charleston, West Virginia.

I have audited the Receipts and Disbursements of the West Virginia State Medical Association for the fiscal year ended April 30, 1939, and am attaching hereto statements covering the various funds for the period under review.

This audit consisted of a verification of all receipts of record, of all disbursements and of the resulting cash balances. In connection therewith I made sufficient tests to satisfy me that all receipts had been recorded, and examined the paid checks covering all disbursements. Bank balances were verified and reconciled with the depository banks, and an inspection was made of the annuity contract with Fidelity Investment Association and of the life insurance policy on the life of Dr. Hugh G. Nicholson.

I therefore certify that in my opinion all receipts in the period under review have been properly accounted for and are correctly stated in the books and in the statements attached hereto. I further certify that the balances in banks to the credit of your Association at the close of business on April 30, 1939, aggregated $12,964.76.

A summary statement of cash is as follows:

Balance May 1, 1938	$ 9,335.69	
Total Receipts for the Fiscal Year	25,304.31	
Total	34,640.00	
Total Disbursements for the Fiscal Year	21,675.24	
Balance April 30, 1939		$12,964.76

The cash balance as shown above is attributable to the various fund accounts as follows:

General Fund—Balance	$ 4,726.10	
Medical Journal Fund—Balance	11,429.79	
Indigent Fund—Balance	2,994.62	
Defense Fund—Balance	200.92	
Convention Fund—Balance	497.06	$19,848.49
Property Account Fund—Deficit		6,883.73
Total All Funds—Net		$12,964.76

Cash receipts included $5,000.00 from the sale of the Nicholson property. Cash disbursements included the premium on the insurance policy on the life of Dr. Hugh G. Nicholson and the payment on the contract with Fidelity Investment Association amounting, respectively, to $1,263.25 and $352.80. Social Security taxes on salaries for February, March and April were not deducted from salaries in these months but will be deducted in the fiscal year beginning May 1, 1939.

The Nicholson property was sold to Joe W. Savage in consideration of $5,000.00 cash and the property known as Lot B, Section A of the Resubdivision of South Ruffner Park, as approved at a meeting held in Parkersburg, W. Va., on April 13, 1939. In the statement of assets shown herein, this property is shown at the cost of the Nicholson property less the $5,000.00 cash received on the exchange.

A comparative statement of assets at the end of the last two fiscal years is as follows:

	May 1, 1938	May 1, 1939	Increase Decrease
Cash in Banks	$ 9,335.69	$12,964.76	$ 3,629.07
Nicholson Property (Now South Ruffner Park Property)	13,442.57	8,442.57	5,000.00
Annuity Contract—Cost	2,485.80	2,838.60	352.80
Cash Surrender Value of Life Insurance	7,950.00	8,650.00	700.00
Total	$33,214.06	$32,895.93	$ 318.13

Respectfully submitted,

NORMAN S. FITZHUGH,
Certified Public Accountant.

Charleston, W. Va.
May 11, 1939.

COMBINED STATEMENT OF RECEIPTS AND DISBURSEMENTS

FISCAL YEAR MAY 1, 1938, TO APRIL 30, 1939

Balance May 1, 1938		$ 9,335.69
RECEIPTS		
Dues (Net)	$11,441.17	
Advertising (Net)	6,852.41	
Emblems and Frames Sold	180.04	
Interest on Savings Accounts	20.59	
Commercial Exhibits	875.00	
Rent (Nicholson Property)	810.00	
Sale (Cash from Joe W. Savage)	5,000.00	
Miscellaneous	125.10	$25,304.31
		$34,640.00
DISBURSEMENTS		
General Fund	$13,816.55	
Medical Journal Fund	5,749.50	
Indigent Fund	300.00	
Defense Fund	282.50	
Convention Fund	655.06	
Nicholson Property Account	871.63	$21,675.24
Balance April 30, 1939		$12,964.76
Charleston National Bank—Checking Account	$11,771.62	
Charleston National Bank—Savings Account	117.92	
National Bank of Commerce—Savings Account	1,075.22	
Total (As per Balance Above)	$12,964.76	

GENERAL FUND

Balance May 1, 1938		$ 7,101.48
RECEIPTS		
Dues	$11,456.17	
Less: Refunds	15.00	$11,441.17
		$18,542.65
DISBURSEMENTS		
Salary—Executive Secretary	$ 5,577.50	
Office Salaries	1,594.40	
Office Supplies	885.13	
Office and Library Rent	480.00	
Library Expense	2.30	
Telephone and Telegraph	284.54	
Postage	367.00	
Traveling Expense	1,099.28	
Convention Expense	1,009.80	
Social Security Tax (Old Age Benefits)	87.60	
Women's Auxiliary	101.25	
Annual Premium for Insurance on life of Dr. Hugh G. Nicholson	1,263.25	
Audit, Legal and Legislative Expense	600.00	
Miscellaneous	464.50	$13,816.55
Balance April 30, 1939		$ 4,726.10

MEDICAL JOURNAL FUND

Balance May 1, 1938		$10,092.95
RECEIPTS		
Advertising	$ 7,865.09	
Less: Discounts	1,012.68	$ 6,852.41
Emblems and Frames Sold	180.04	
Interest on Savings Accounts	20.59	
Miscellaneous Receipts	33.30	$ 7,086.34
		$17,179.29

DISBURSEMENTS

Printing	$ 4,483.17		
Engraving	282.43		
	$ 4,765.60		
Less: Discounts	128.49	$ 4,637.11	
Emblems and Frames Purchased		170.00	
Postage		160.00	
Annuity Contract — Fidelity Investment Association		352.80	
Miscellaneous Disbursements		429.59	$ 5,749.50
Balance April 30, 1939			$11,429.79

INDIGENT FUND

Balance May 1, 1938		$ 3,294.62
RECEIPTS—None		
DISBURSEMENTS		
Benefits Paid to Mrs. S. A. Daniel		$ 300.00
Balance April 30, 1939		$ 2,994.62

DEFENSE FUND

Balance May 1, 1938		$ 483.42
RECEIPTS—None		
DISBURSEMENTS		
Attorney Fees		$ 282.50
Balance April 30, 1939		$ 200.92

CONVENTION FUND

Balance May 1, 1938		$ 185.32
RECEIPTS		
Commercial Exhibits	$ 875.00	
Miscellaneous	91.80	$ 966.80
		$ 1,152.12
DISBURSEMENTS		
Traveling Expenses	$ 57.90	
Supplies and Labor	3.78	
Greenbrier Hotel	500.00	
Miscellaneous Disbursements	93.38	$ 655.06
Balance April 30, 1939		$ 497.06

NICHOLSON PROPERTY ACCOUNT

Balance May 1, 1938		$11,822.10
RECEIPTS		
Cash Received—Sale of Property	$ 5,000.00	
Rents	810.00	$ 5,810.00
		$ 6,012.10
DISBURSEMENTS		
Taxes	$ 300.14	
Repairs	483.49	
Miscellaneous Disbursements	88.00	$ 871.63
Balance April 30, 1939		$ 6,883.73

Black Figures Denote Deficit.

REPORT OF LEGISLATIVE COMMITTEE

Your Legislative Committee feels that it can report a successful 1939 session. Senate Bill 159, known as the "Prefix Doctor Bill", was the only measure sponsored solely by the Association. It was introduced and handled by Senator Ward Wylie of Mullens and was passed by both houses with little opposition. The bill provides that no person may publicly use the prefix "doctor" without affixing suitable words or letters to indicate the degree. This bill became effective on June 6. Its purpose, so far as our Association is concerned, is to prevent cultists and others from posing as doctors of medicine.

Sponsored by the State Health Department and supported by your Legislative Committee was House Bill 117, known as the marriage examination law. You are all no doubt familiar with this measure, which was passed and which went into effect last month. The marriage examination law requires as a prerequisite to the issuance of a marriage license, the filing of a certificate from a licensed physician stating that the applicant has been given a medical examination, including a standard serological test, in order to determine the prevalence or non-prevalence of syphilis.

Defensively, our committee was active in bringing about or helping to bring about the defeat of a number of measures which were inimical to the best interests of the medical profession. Chief among these was House Hill 255 to exempt the Christian Scientists from the provisions of the medical practice act of West Virginia. Although the faith healers bill had considerable support and remained a threat until the final day of the legislative session, we were able to keep it in committees in both the House and Senate and it never reached the calendar in either body.

Two other important measures that were opposed by the committee were House Bill 273, which would have levied a two per cent "use" tax on all medical, surgical and hospital supplies purchased outside the state, and House Bill 87, which would have authorized municipalities, by ordinance, to levy privilege taxes against professions. This last measure was an attempt to overcome the injunction secured by the Monongalia County Medical Society in the Morgantown tax case. Both of these measures were defeated.

One of the most misunderstood measures of the recent session was Senate Bill 107, sponsored jointly by the Hospital Association and by the hospital insurance plans of Charleston and Bluefield. While this was not an Association measure, we were keenly interested in several of its phases. Of particular interest was the provision in Senate Bill 107 which would have provided insurance regulation and control over independent hospitals or individuals that sell medical and surgical insurance to the general

public. Your committee knew nothing of this bill until after the legislature convened. It was gone over by our Association attorney and, when its advantages were made clear, we issued an immediate bulletin to the county secretaries urging support. Through various misunderstandings, which we were unable to control, this bill was opposed by many of our members and failed to get out of committee. The primary purpose of this bill was to provide regulatory protection and control through the state insurance department of non-profit group hospital insurance plans in West Virginia.

A complete report on the activities of your committee was published in detail in the April issue of THE WEST VIRGINIA MEDICAL JOURNAL; hence this report is limited to the above few highlights of the 1939 session. We wish to take this opportunity to express our appreciation for the wonderful help and guidance of Dr. Ward Wylie, the senator from Wyoming County, to Mr. Claude Swann of Huntington, chairman of the House Committee on Medicine and Sanitation; Delegate Nelle Walker of Fayette County; Speaker Kay Thomas, and our many other friends and supporters of the medical profession.

ROBERT KING BUFORD, *Chairman*

PUBLIC ASSISTANCE ADVISORY COMMITTEE REPORT

The activities of your Public Assistance Advisory Committee have been carried on in the usual way. We have held two or three meetings each month during the past year with the State DPA officials and have endeavored to represent the interests of the medical profession to the best of our abilities. We have two matters of considerable interest to report at this time.

First, as you know, the entire appropriation for the Adult Physical Rehabilitation program for the past year was expended early in January, 1939. From that time until July 1, the Rehabilitation Program was abandoned because no additional funds were available with which to carry it on. Your committee is pleased to report that a new appropriation of $100,000 per year for the next two years has been set aside for Adult Physical Rehabilitation and this program was reinaugurated on July 1 this year. The entire Rehabilitation Program has been taken out of lay hands and placed under the direct management and supervision of Dr. D. L. Butterfield. While we have no particular criticism of the past rehabilitation record, your committee believes that it will be much more successful and managed much more to the satisfaction of the medical profession now that it is under the direct supervision of a physician.

Secondly, due to the reduced appropriation for the Department of Public Assistance for the next biennium a straight reduction of 20 per cent was recently ordered in all public assistance activities. This, of course, included the medical relief program. The reduction in anticipated medical relief expenditures has given your committee the utmost concern. We have met several times with the DPA officials to discuss this matter and on Friday of the past week final action was announced on a new plan which we believe will greatly alleviate the condition above mentioned.

In addition to the regular relief clients that are cared for by the State DPA, there are approximately 75,000 persons who are covered in one form or another by what is known as classified assistance. This includes the aged, the blind, dependent children, and other special groups. While the ordinary relief clients are cared for entirely by state funds, those on classified assistance are taken care of by both state and federal funds, matched dollar for dollar. While these persons on classified assistance receive matched funds for their support, their medical and hospital service has always heretofore been provided under the general medical relief program, with unmatched funds. This has brought about a constant drain of state funds for medical relief services.

In casting about for relief from this situation, the idea was conceived to increase the monthly allowance of persons on classified assistance; the increase to be used for medical and hospital care. Mr. A. W. Garnett, state director, recently went to Washington and took this matter up with the officials there. The matter was then presented to the State DPA Advisory Board last week and this procedure is now approved and will go into effect in three counties within the next few days. We can best illustrate how this works out by giving you the following hypothetical case.

John Jones and his wife are an aged couple receiving classified assistance in the amount of $20.00 per month. Mr. Jones becomes ill with pneumonia and requires several days hospitalization. His total bill for hospitalization and medical service is $60.00. The Jones have no way of paying this amount out of their meager allowance. Hence Mr. Jones'

allowance is increased to $30.00 per month, in return for which he and Mrs. Jones sign a written agreement that they will pay the extra $10 per month to their physician and hospital. A representative of the County DPA Unit will see that this amount is paid each month. At the end of six months the bill is paid and Mr. Jones' monthly allowance again reverts back to $20.00 per month.

While we recognize this plan is not ideal, it is the only system that could be worked out under the arrangement for matched funds with the federal government. One of the most meritorious features of the plan is that it will increase the responsibility of these patients to their family doctor and reestablish in some degree the doctor-patient relationship which has been sadly missing in our regular medical relief program.

Probably a point of much interest is the fact that the new plan, which affects only classified assistance cases, will make much more money available for all types of medical relief service and will provide more and better service to these indigent patients.

This new plan will first be tried out in three selected counties for a period of approximately six weeks. The reason for this trial period is to utilize the experience in these three counties in order to work out details that may be applied on a statewide basis. The three experimental counties have not been selected, but will be chosen on the basis of cooperation and understanding between the county medical societies and the Department of Public Assistance. Before September 1, we feel sure this new setup for classified assistance will be in existence in every county in West Virginia. We believe this new setup will be a great aid in absorbing the legislative reduction in the appropriation for the Department of Public Assistance.

B. H. SWINT, *Chairman*

COMMITTEE ON MATERNAL WELFARE

In 1938 postgraduate conferences in obstetrics were held in ten cities of the state under the sponsorship of the State Association. These cities were, as in the year 1937, divided into a northern and southern circuit. Three conferences dealing with obstetrics were held in each center.

The conferences in the northern circuit were held in Martinsburg, Keyser, New Martinsville, Weston and Fairmont. In the southern circuit were Gauley Bridge, Logan, Welch, Beckley and Ronceverte.

The total attendance at these conferences was as follows:

Northern circuit: Physicians, 252; visitors, 40; total, 292.

Martinsburg—Physicians, 38; visitors, three; average of physicians, twelve and one-third.

Keyser—Physicians, 50; visitors, none; average of physicians, sixteen and two-thirds.

New Martinsville—Physicians, 32; visitors, 28; average of physicians, ten and two-thirds.

Weston—Physicians, 59; visitors, nine; average of physicians, nineteen and two-thirds.

Fairmont—Physicians, 73; visitors, none; average of physicians, twenty-four and one-third.

Southern circuit: Physicians, 288; visitors, 44; total, 332.

Gauley Bridge—Physicians, 47; visitors, three; average of physicians, fifteen and two-thirds.

Logan—Physicians, 64; visitors, four; average of physicians, twenty-one and one-third.

Welch—Physicians, 59; visitors, six; average of physicians, nineteen and two-thirds.

Beckley—Physicians, 77; visitors, 28; average of physicians, twenty-five and two-thirds.

Ronceverte—Physicians, 41; visitors, three; average of physicians, thirteen and two-thirds.

This is better than the report of attendance for 1937. It shows a growth of interest in these conferences. It is realized that the value of this post graduate refresher course will only be apparent after several years of effort.

The work in obstetrics for this season will again be undertaken in the northern and southern circuits. The lecturers in obstetrics for the northern area will be Doctors E. D. Plass and William F. Mengert of the University of Iowa. In this circuit conferences will be held in Weirton, Moundsville, Buckhannon, Elkins and Keyser.

In the southern circuit the obstetric lecturer is Dr. Wm. J. Dieckmann of the University of Chicago. The towns included are Bluefield, Williamson, Huntington, Beckley and Ronceverte.

During the past year your chairman has again served as the maternal welfare member of the Advisory Committee to the Division of Maternal and Child Hygiene of the State Health Department.

Under the sponsorship of this division of the health department, twenty-five maternal health conferences are held in rural areas. These are held once a month.

This is a rural project and is confined to locations of a population of 10,000 or less. This educational endeavor affords actual examinations for maternity cases in the low income groups and cases on relief. Aside from this group, cases are admitted who are referred to such conferences by physicians. Local physicians act as clinicians at these conferences and receive an honorarium for their services. The service actually given at the conferences consists of a complete physical examination including a blood test, urinalysis and pelvic measurements of all prenatal cases. After the first visit the cases are urged to return for follow-up examinations until time for delivery. No delivery service is offered and patients are referred to local physicians for delivery. After delivery the patients are urged to return for a final examination when their infant is six weeks old. At these conferences public health nurses have an opportunity of meeting groups and teaching the principles of maternal and infant care.

In a memorandum of June 2 of this year, it is noted by the director of the division of Maternal and Child Hygiene that:

(1) Where it is possible, clinicians should be selected who are specialists either in obstetrics or pediatrics. Where this is impossible, clinicians should be selected who are especially interested in these respective branches of medicine. In any event, all clinicians must be qualified, licensed practitioners of medicine.

(2) Payment of Clinicians: The Division of Maternal and Child Hygiene will pay physicians who act as clinicians in the above named conferences, at the rate of $3.00 an hour, but not more than $7.50 will be paid for any one conference session, up to the amount shown for this purpose on the local budget. It is felt that no conference should last longer than two and one-half hours. If the attendance is so great as to make it impossible to see all those in attendance in two and one-half hours, then the conference should be held more than once a month.

(3) It is still the policy to hold these conferences once a month, at the same time, on the same day, and at the same place. Where it is evident that a conference should be held more than once a month, the Director of the Division of Maternal and Child Hygiene should be consulted before doing so.

Under private agencies five maternal health conferences are conducted. These are sponsored by Mothers' Clubs, Women's Clubs and similar agencies. Some are held weekly, others bi-weekly.

In some localities physicians have established regular weekly or semi-weekly prenatal conferences for their private patients.

Your committee feels that definite progress has been made in maternal welfare during the past year. The greatest probably in the awakening of interest among lay persons as to the importance of maternal care.

Respectfully submitted,

JAS. R. BLOSS, *Chairman.*

CHILD WELFARE COMMITTEE

The report of the Committee on Child Welfare activities covers several items of vital concern to the entire membership of this Association.

The interest and attention of this body at present is largely concerned with consideration of the threats to the science of medicine by social and governmental agencies, ambitious to revolutionize orderly procedure in the continued development and distribution of medical care. Such agencies have promoted an impression that there has been a "breakdown" in medicine and that our members are divided amongst themselves. We know that this is not true.

I am wondering with all of our attention focused on these threats if possibly we are not paying too little attention to the purposes for which this Association was formed.

I wish to recall to your memory one of the "Dooley" stories of how the hoodlums of the sixth ward stood in front of Mrs. Murphy's house calling her names, she was so busy talking back to them from the front door that she failed to hear the other members of their gang raiding her icebox through the kitchen door.

I wish at this time to ignore the noise of the hoodlums in front of the house and briefly to redirect your attention to a particular phase of our activities and to some threats to them from an entirely different quarter.

With the passage of the Social Security Act in 1935, funds became available for the first time to supply postgraduate teaching to the physicians of the United States. To the present time such funds are "ear-marked" for child and maternal health work.

Beginning with 1936 we have had available through our State Health Department approximate-

ly $2,500.00 annually to pay instructors for our postgraduate work in obstetrics and pediatrics. There has been a great deal of criticism for the conduct of these courses—some earned, some unearned. The interest taken by the physicians as measured by the attendance record is poor indeed, for with the third year we still have less than 15 per cent of the physicians attending the courses.

This program is designed primarily for the physicians in the rural areas and the smaller towns. There has not been sufficient funds to permit holding the conferences in all sections of the state each year so that it is necessary to select centers that will be available to as many of the physicians as possible. The time of year for the conduct of the courses must of necessity be that time when teachers are free to be away from their regular teaching work in the medical schools. The hour for the conferences has been left to the county medical society to determine. The attendance was so poor in 1936, a questionnaire was sent to all those who appeared to be interested as to whether or not they would be willing to pay a registration fee of $5.00 for the work the following year. The majority answered in the affirmative. Therefore, in 1937 a registration fee of $5.00 was charged. A part of this fee went to the county society. The attendance was a little better, but far below what it should have been. Many physicians seemed to fear that since the State Health Department was making the funds available we were being forced into something that we should avoid. The Advisory Committee appealed to the Council to approve the program and to conduct the "build-up" for the courses. This was agreeable to both the Council and the State Health Department. As a result, the work in 1938 had a much better reception and we are more hopeful for this year.

The fundamental padagogic methods have guided all attempts at postgraduate medical education. Information developed at our medical centers must be taken to the practitioner or the practitioner must be brought to the medical center for organized teaching of scientific progress in medicine. For various reasons both methods have met with only moderate—and in many cases, no success. The reasons for this are: (1) the expense of organization of postgraduate medical courses at the medical centers for the few physicians who are able to get away from their practice; (2) the expense to the physician student of remaining away from his practice for from four to six weeks, and (3) in the bringing of medical teachers to the practicing physician, it is difficult for him to make his teachings fit the day-to-day problems of the practitioner. Finally there has been, and still is, lethargy on the part of the medical profession in recognizing the needs and benefits to be derived from adequate postgraduate medical instruction. By far too many of our rank close their minds, as well as their books, when they graduate from medical school. Our lethargic state of mind, which is shown in less than 15 per cent of our physicians in attendance at our postgraduate conferences over a period of three years has resulted in the governmental interest in our present system of medical practice. Furthermore, we are going to make it harder for those who come after us. The time is not far distant when we are all going to be required to stand reexamination every three to five years.

While we are fretting about what prepayment insurance plans will do to harm our present system of practice, listen to what has happened to reduce infant and maternal morbidity and mortality: The Technical Committee on Medical Care of the Interdepartmental Committee to Coordinate Health and Welfare Activities on June 18, 1938, recommended to the National Health Conference the annual expenditure of $225,000,000 by the tenth year of the program.

This program calls for expansion of the facilities for maternity care and medical care for children, including health supervision of pregnant women and of infants and preschool children by local physicians, public health nursing services, health supervision of school children, and the services of dentists, nutritionists, health educators and medical social workers. Medical care of mothers and their newborn infants, throughout the period of maternity and the neonatal period, including care of the mothers at delivery in the home or in the hospital, and of their newborn infants, by qualified local physicians with the aid of specialized consultants, assisted by nurses, preferably public health nurses, trained in obstetric nursing procedure. Facilities for expert diagnosis and care in diagnostic or consultation centers and in the home. Hospital care as necessary for medical, social, or economic reasons. Health supervision, medical care, and, when necessary, hospitalization of older infants and children, the health supervision and medical care to be provided by qualified local physicians with the aid of specialized consultants in local consultation or diag-

nostic centers, or elsewhere when the ill child cannot be brought to the center.

To provide for such an expanding program, an annual cost to federal, state, and local governments of $95,000,000 is estimated for maternity care and care of newborn infants, based on the needs of families on relief or with incomes of less than $1,000 a year (approximately 1,100,000 live births and stillbirths annually), including cost of medical, nursing, and hospital care, development and maintenance of 10,000 additional maternal and child health consultation centers to serve smaller cities, towns; and rural areas; development of centers for postgraduate education of physicians, nurses, medical social workers, and federal and state administration. For health supervision and medical care of children, the average unit cost of providing a minimum of essential medical services is estimated to be $10.00 per child per year, or an additional annual sum of $130,000,000 for the 13,000,000 children under 15 years of age in the third of the population in need of financial assistance in obtaining basic health and medical services.

From the plans submitted by the several states, it becomes apparent that the functions of the state divisions of maternal and child health are as follows: (1) To seek the cooperation of the physicians of the state in extending statewide facilities for continuous health supervision throughout pregnancy, infancy, and childhood, and in providing care for sick children and for women at delivery; (2) to seek the cooperation of physicians and all other citizens of the state in informing the public as to what is good maternity care, and how facilities for such care may be made available in each locality of the state; (3) to develop maternity and child health services in all parts of the state through local health units; (4) to aid in the organization of local health units through the provision of child health or maternity services in areas not yet fully organized; (5) to be responsible for the establishing of high standards of service in the maternal and child health field; (6) to cooperate with all other bureaus of the state health agency in activities affecting the health and welfare of children and mothers, such as public health nursing, control of communicable diseases, including tuberculosis and syphilis, collection and study of vital statistics, control of the milk and water supply; (7) to cooperate with other state agencies concerned with problems of child health and welfare, as the bureaus for child welfare, departments of education and the agriculture extension service of the departments of agriculture; (8) to cooperate with medical and other professional groups in providing facilities for postgraduate education in maternity care and the care of children and the related fields of nutrition and dental care, and (9) to promote health education through the schools and the general public.

The maternal and child health services that are carried out under state plans are basically those commonly described as health supervision :(1) prenatal clinics and child health conferences conducted by physicians with the aid of public health nurses; (2) home visiting by public health nurses for teaching maternal, infant, and child hygiene, and for instruction in bedside nursing care, and (3) nurses' classes or conferences with mothers for educational or follow-up purposes.

In summary: Each and everyone of us should be asking ourselves the question, "What is the need for such a program?", "If health conditions are better in this country?", "If our system of medical practice is ideal?", "Why?" The answer is that we have more than 60,000 babies born each year with congenital syphilis; more than 69,000 babies die within the first month of life annually; more than 75,000 infants are stillborn, so that 144,000 young women in any given year go through the trying period of pregnancy and childbirth and the result is a dead baby or one that will die in a few days or weeks. We have a low maternal death rate, but more than 12,500 mothers are lost annually in childbirth. These figures are unnecessarily 50 per cent too high. Gentlemen of this House of Delegates, our present system of medical practice is a haphazard one and the present social upheaval has placed us on trial. Under the name of "welfare" the practice of medicine as we know it, must make some prompt, definite changes before outside pressure becomes so strong that it bursts forth in revolution. The time has come for the concerted action of our Association. Thank you.

ANDREW E. AMICK, *Chairman.*

PUBLICATION COMMITTEE

THE WEST VIRGINIA MEDICAL JOURNAL has enjoyed another successful financial year. The actual profit for the twelve month period ending April 1, 1939 was eighteen hundred and fifty-nine dollars and sixty-four cents ($1,859.64). This is represented by cash in the amount of $1,336.84; Fidelity

Bond, $362.80; automobile emblems paid for and on hand, $170.00. This makes a total of $1,859.64. It might also be pointed out that during the year we purchased a new Addressograph for $170.00, which really would bring the actual JOURNAL profit to $2,029.64. The JOURNAL's total assets represented on the books of the Association now amount to $11,429.79. This is exclusive of the Fidelity Contract which now has a cash surrender value of $2,838.60. All of this has been made on JOURNAL advertising for the past twelve years.

No change has been made in the physical make-up of the JOURNAL with the exception of the new cover design, which we began using with the January, 1939 issue. The JOURNAL has continued throughout the year to receive a considerable amount of recognition and has been rather widely quoted by many of the other state and national medical publications. A considerable number of the scientific articles of the JOURNAL have been abstracted in the *Journal of the American Medical Association.*

Although scientific articles have ordinarily been scheduled for publication in the order in which they have been received, exceptions have been made from time to time because of the seasonal value of such manuscripts. A few months ago the JOURNAL Publication Committee began rating papers A. B. and C, according to their interest and value. In the future manuscripts which have the highest rating will probably take precedence over the others.

The profusion of scientific material now available brings to the fore the question of an increase in size. Bids have already been secured and within the reasonably near future we plan to institute the increase.

It is the opinion of the Publication Committee that much valuable clinical material in the form of case records "goes to waste", so to speak, in our state, and we urge the submission of well-worked-up case reports. It is believed that internes especially should be encouraged to enter this field.

In closing we wish to acknowledge our indebtedness to the Business Manager, Mr. Joe W. Savage, without whose tireless work and guiding hand the JOURNAL could not possibly have attained its present high standard.

WALTER E. VEST, *Chairman,*
J. HOWARD ANDERSON,
G. G. IRWIN,
CHESTER R. OGDEN,
FRED R. WHITTLESEY,

LOW COST STUDY COMMITTEE

At the Conference of the Presidents and Secretaries of County Societies, which was called by the Committee on Low Cost Study, the following resolution was presented by Dr. Eugene Brown, Summersville, and seconded by Dr. John P. Helmick, Fairmont and Dr. E. F. Heiskell, of Morgantown:

"WHEREAS, There has been indicated a definite need to insure the low income group, and whereas it has been demonstrated at this conference that a state-wide plan is unwieldly and unworkable, be it resolved that this conference disapproves a state-wide plan and approves a plan based on county option under state supervision by the State Association, said plan to embody the essential points brought out in today's discussion."

This resolution was unanimously adopted.

In view of the action taken by the conference of Presidents and Secretaries of our county societies your Committee on Low Cost Study, with the Council's approval, submits the following recommendations:

"*Be It Recommended,* That a standing committee be hereby created to be known as the State Medical Service Committee, which shall make further study of the problem of medical service for the indigent and low income groups, and which shall act only in an advisory capacity to county or district medical society plans which may be created, for furnishing medical and surgical service in the home, office or hospital, on prepayment insurance basis.

"That the State Medical Service Committee shall consist of the president and six members, one from each Councillor District. Each member shall be nominated jointly by the president and the two councillors in his district, and shall be elected by the House of Delegates. The terms shall be for three years, but for the first year, two members shall be elected for one year, two for two years, and two for three years; and thereafter two members shall be elected each year. The committee shall elect its own chairman and shall meet at his call. All available data, including the studies of the Low Cost Committee, shall be placed at the disposal of this committee and local societies.

"*It Is Further Recommended,* That the West Virginia State Medical Association endorse the principal of prepayment sickness insurance for the low income group and approve the optional establishment of county society or district plans providing they are sanctioned and controlled by the county

societies and that patients are given free choice of physician and hospital.

Respectfully submitted,

R. J. WILKINSON, *Chairman*,
ROBERT J. REED, JR.,
R. V. SHANKLIN,
R. O. ROGERS,
PHILLIP JOHNSON,
JOHN W. MOORE.

SYPHILIS COMMITTEE

During the past year several changes have been made in the personnel of the committee. Dr. J. L. Wade of Parkersburg was appointed to succeed Dr. A. H. Stevens, deceased, and Dr. G. R. Maxwell, Dr. Boyd F. Brown and Dr. George Evans were appointed at the request of the chairman.

The committee has at all times cooperated with the Venereal Disease Bureau of the State Health Department and recommends that this cooperation be continued.

It is the impression of the committee that all venereal disease clinics operated by the State and County Health Departments have had increasingly close supervision and both the personnel and facilities of said clinics have been improved.

Five public health clinics are now equipped with dark field apparatus. This equipment has been limited to those whose skill in its usage has been demonstrated.

There is evidence of increased professional and technical efficiency in the management of the venereal disease clinics. This is possibly the results of teaching in the postgraduate seminæ on syphilis during the summer of 1938 and possibly due to the wider adoption of the standard treatment outline. It is particularly noticeable that a larger number of treatments, both arsenical and heavy metals are now employed for the treatment of the individual patient. Further, more health officers have been urged to perform physical examinations on every patient prior to treatment and there has been increasing activity in the performance of lumbar punctures for the diagnosis of neurosyphilis.

It has not been found feasible to conduct serological surveys of all employed on public assistance rôles. This would overtax the facilities of the state laboratory. The Public Assistance Department, however, is in close cooperation with the State Health Department and is subsidizing several clinics in counties not provided with health service. Those patients on relief having any disability, chronic illness or evidence of syphilitic infection are admitted to the venereal disease clinics for treatment when necessary.

Every effort is being made to follow transient patients. Health officers and clinicians are instructed to forward a transcript of each patient under their care when the patient moves into another district and comes under the supervision of other health officers.

A number of pamphlets covering the subject of the diagnosis of syphilis and one on the treatment of syphilis, in general practice, both prepared by the United States Public Health Service, have been distributed to the profession. A smaller pamphlet "Syphilis, Its Cause, Its Spread, Its Cure", has been distributed and favorably received by the laity.

There has been no change in the regulations in regard to barbers and beauticians who continue to require physical examinations and blood tests of all so employed. It is the opinion of this committee that the food handlers ordinance is not being enforced.

An effort is being made to secure blood Wassermanns on all patients applying for care in prenatal and postnatal clinics.

The plans of the subcommittee for the study of neurosyphilis and the treatment of this disease in state institutions with DPA assistance were not consummated due to the lack of funds of the latter organization.

The work of the state's public health laboratory has gone on in a satisfactory fashion. The committee during the past year recommended that the term "Kline screen test" be employed instead of the term "Kline exclusion test." This would indicate that a negative Kline completely ruled out syphilis which we know is not true.

There has been no change in the regulations as to a general free laboratory service for the state. This is still confined to indigent patients.

A bill requiring physical examination and blood Wassermann prior to marriage has passed the legislature. The State Syphilis Committee had no part in the preparation or passage of this bill. If the bill is successful in obtaining the desired objectives, the syphilis committee can take no credit for this success. If one the other hand it is proven to be faulty legislation the committee can likewise take no blame for its failure.

The committee again recommends that the State

Medical Society, through its component county societies, urge that all physicians take a blood Wassermann on all pregnant women coming under their care.

The blanks for reporting cases of syphilis to the State Health Department have again come in for considerable discussion but no final revision has been made.

The syphilis committee has inspected the work of the Logan County Syphilis Project and find that it is being carried on most ably under the direction of Dr. Edward C. Jones, Jr. It is recommended that members of the State Society visit this project and see its work when feasible.

The syphilis committee does not recommend any attempt at serologic surveys of industrial organizations at the present time unless specifically requested by such organizations after due notice has been given.

The Venereal Disease Bureau continues to provide free drugs for indigent patients. Recently the director revised the standard requisition form, making it possible for the private physician treating indigent cases to charge a minimum fee for his services. The old requisition required the physician to make affidavit that no charge be made for his services. This change was deemed advisable for the reason that there are a large number of semi-indigent patients who could pay a minimum fee, but not the average fee of $5.00 per treatment. This change has received the endorsement of your committee.

The reporting of cases of syphilis is still extremely faulty. It is recommended that each individual doctor make every effort to report his cases at least by number or symbol to his county health department. It is interesting to note that in 1938, six counties reported no syphilis whatsoever. It is suggested that the secretary of each county society again present to the members the importance of reporting each and every case.

At the request of the Venereal Disease Bureau certain specifications are set up to define the term "infectiousness" as the term is implied in the premarital bill. The physicians of the state are advised that they may secure advice along this line by applying to the State Health Department.

It is believed that the syphilis committee is able to fulfill a useful function as a representative of the State Medical Society cooperating with the Venereal Bureau of the West Virginia Public Health Department. For this reason we recommend to the president that it be continued as a standing committee.

W. M. SHEPPE, *Chairman*,
BOYD BROWN,
J. L. WADE,
G. R. MAXWELL,
GEORGE EVANS.

COMMITTEE ON SCIENTIFIC WORK

The committee on scientific work held meetings in Parkersburg, on November 27, 1939, and at Charleston on May 3, 1939.

The following members in addition to the general committee attended one or both of the meetings:

Dr. J. L. Wade representing the Medical Section; Dr. Welch England representing the Eye, Ear, Nose and Throat Section; Dr. J. L. Blanton representing the Section on Pediatrics, and Mr. Joseph W. Savage.

At the first meeting of the committee it was decided that the general sessions should be held in the mornings of the first, second and third day, beginning at 9:30 a. m., and the sectional meetings in the afternoon starting at two o'clock. The general committee decided that a July meeting at White Sulphur Springs would be much more pleasant and better attended.

The committee on scientific work feels that the program should consist of the general sessions and the sections only of the Association, that is, the program should not include the Obstetrical and Gynecological Society, the Heart Association and the Society of Industrial Physicians and Surgeons. The committee on scientific work is only a clearance house for the sections referred to, therefore, it is quite impossible for the committee to assemble a varied or timely program or have panel discussions on subjects of vital interest to the entire membership of the Association.

The committee wishes to express its appreciation to those who helped to assemble the program, particularly, Mr. Joseph W. Savage.

Respectfully submitted,

WILLIAM R. GOFF,
ANDREW E. AMICK,
R. J. CONDRY.

NECROLOGY REPORT 1939

It is with deepest regret that the demise of the following members of our Association is reported:

A. H. Woodford, Belington.....April 16, 1938
Edwin A. Wilson, Salem.....July 12, 1938

Lawrence A. Petty, Charleston..August 13, 1938
A. F. Ruble, Elm Grove.....August 16, 1938
Homer Allen Walkup, Mt. Hope.August 19, 1938
Hiram B. Martin, Huntington...August 23, 1938
M. R. Bell, Keyser.....August 30, 1938
Victor Hugo Dye, Sistersville..September 27, 1938
French S. Holsberry, Parsons..December 3, 1938
James Putney, Charleston.....February 7, 1939
Thos. J. Farley, Amherstdale..February 18, 1939
Page D. Barlow, McMechen..February 23, 1939
Amos Henry Stevens, Fairmont..March 11, 1939
John H. McCulloch, Beckley....March 18, 1939
W. H. Post, Masontown.....March 18, 1939
Charles A. Martin, Amherstdale..March 25, 1939
John Worth English, McDowell.March 28, 1939
Stockley David Hays, Flemington..April 21, 1939
Joseph Kins Rowland, Flat Top...May 19, 1939
Benjamin S. Parks, Parkersburg....May 19, 1939
C. P. Bradley, Lindside.....May 21, 1939
Samuel W. Price, Scarbro.....June 1, 1939
E. W. Hoylman, Dorr.....June 16, 1939
Lyle B. Hart, Beckley.....July 8, 1939

Requiescat in Pace!

SECTIONAL OFFICERS

The following officers were elected by the various Sections and special societies at the White Sulphur Springs meeting:

Eye, Ear, Nose and Throat Section: J. Hallock Moore, Huntington, chairman; Ben W. Bird, Jr., Princeton, secretary.

Internal Medicine Section: James L. Wade, Parkersburg, chairman; P. A. Tuckwiller, Charleston, secretary.

Pediatric Section: Raymond Sloan, Huntington, chairman; Thomas G. Folsom, Huntington, secretary.

Surgical Section: B. S. Brake, Clarksburg, chairman; Hu Myers, Philippi, secretary.

West Virginia Heart Association: P. A. Tuckwiller, Charleston, president; L. C. McGee, Elkins, secretary.

West Virginia Industrial Physicians and Surgeons Society: H. H. Haynes, Clarksburg, president; Claude B. Smith, Charleston, vice president; E. B. Henson, Charleston, secretary.

West Virginia Obstetrical and Gynecological Society: A. Morgan Dearman, Parkersburg, president; Gilbert A. Ratcliff, Huntingon, vice president; Edwin J. Humphrey, Huntington, secretary.

REGISTRATION

Barbour-Randolph-Tucker — (The address is Elkins unless indicated)—A. P. Butt, Jr., P. C. Chenoweth, H. A. Conrad, R. J. Condry, B. I. Goldman, T. M. Goodwin, C. H. Hall, W. G. Harper, L. C. McGee; Guy H. Michael, Belington; Hu C. Myers, Philippi; Samuel Weisman, Parsons; W. E. Whiteside, Parsons.

Boone County—F. G. Prather, Wharton; W. V. Wilkerson, Prenter.

Brooke County—J. P. McMullen, Wellsburg.

Cabell County—(The address is Huntington unless otherwise indicated)—H. E. Beard, W. F. Beckner, Oscar B. Biern, James R. Bloss, Ray M. Bobbitt, J. J. Brandabur, J. A. Guthrie, I. I. Hirschman, Jay L. Hutchison, George D. Johnson, Spencer; A. S. Jones, Don Kessler, Geo. M. Lyon, F. O. Marple, J. Hallock Moore, M. B. Moore, W. E. Neal, G. A. Ratcliff, A. G. Rutherford, R. M. Sloan, W. C. Swann, I. W. Taylor, Walter E. Vest, R. J. Wilkinson, C. G. Willis, C. B. Wright.

Central West Virginia—A. B. Bowyer, Buckhannon; A. W. Brazda, Richwood; Eugene S. Brown, Summersville; J. M. Cofer, Bergoo; L. W. Deeds, Buckhannon; W. E. Echols, Richwood; J. E. Echols, Richwood; George D. Hill, Tioga; Henrietta L. Marquis, Richwood; James McClung, Richwood; W. E. McIlvain, Sutton; M. T. Morrison, Sutton; William Nelson, Richwood.

Doddridge Society—A. Poole, West Union; R. S. White, West Union.

Eastern Panhandle—W. L. Haltom, Martinsburg; M. H. Porterfield, Martinsburg; Compton Riely, Martinsburg; R. B. Talbott, Martinsburg.

Fayette County Society—W. P. Bittinger, Summerlee; N. L. Cardey, Winona; G. A. Daniel, Alloy; L. A. Dickerson, Oak Hill; Chas. H. Englefried, Montgomery; C. A. Fleger, Ansted; George Fordham, Powellton; Claude Frazier, Montgomery; Ralph Hogshead, Montgomery; C. C. Jackson, East Rainelle; R. H. Jones, Montgomery; T. K. Laird, Montgomery; W. R. Laird, Montgomery; M. W. McGehee, Montgomery; N. G. Patterson, McKendree; D. F. Predmore, Ansted; H. H. Ritter, Montgomery; R. A. Updike, Montgomery.

Greenbrier Valley—R. E. Baer, White Sulphur Springs; J. M. Brown, Alderson; R. C. Cecil,

Rainelle; J. H. Crouch, Lewisburg; A. D. Ferrell, Ronceverte; H. L. Goodman, Ronceverte; H. D. Gunning, Ronceverte; Guy Hinsdale, White Sulphur Springs; H. L. Kirkpatrick, White Sulphur Springs; A. G. Lanham, Ronceverte; J. G. Leech, Quinwood; C. W. Lemon, Lewisburg; C. F. Mahood, Alderson; T. G. Matney, Peterstown; E. W. McCauley, Rainelle; W. E. Myles, White Sulphur Springs; D. G. Preston, Lewisburg; Edda Von Bose, Alderson.

Hancock Society—Thomas H. Bruce, New Cumberland; A. E. McClue, Charleston; A. B. Rinehart, Weirton.

Harrison Society—(The address is Clarksburg unless otherwise indicated)—B. S. Brake, I. D. Cole, George F. Evans, W. T. Gocke, S. S. Hall, H. H. Haynes, T. M. Hood, Frank V. Langfitt, Chester R. Ogden, C. O. Post, Harry V. Thomas, J. F. Williams, J. E. Wilson.

Kanawha County Society—(The address is Charleston unless otherwise indicated)—Andrew E. Amick, R. L. Anderson, H. W. Angell, Hugh A. Bailey, J. B. Banks, T. M. Barber, Jack Basman, H. E. Baum, H. E. Beddow, S. L. Bivens, W. P. Black, Thomas H. Blake, O. H. Bobbitt, M. L. Bonar, A. Spates Brady, Jr., Henry M. Brown, J. E. Cannaday, T. E. Cato, W. L. Cooke, H. M. Escue, St. Albans; H. H. Fisher, Dunbar; J. W. Frazier, A. T. Gordon, Spencer; E. B. Henson, W. E. Hoffman, V. E. Holcombe, H. H. Howell, Madison; J. Ross Hunter, A. P. Hudgins, R. A. Ireland, G. G. Irwin, E. V. Jordan, Ray Kessel, J. P. Lilly, C. B. Marshall, Nitro; U. G. McClure, R. S. McLaughlin, W. A. McMillan, M. I. Mendeloff, A. W. Milhoan, Nitro; J. W. Moore, Thomas W. Nale, E. W. Owen, Spencer; W. W. Point, Albert M. Price, C. A. Ray, Thomas G. Reed, J. U. Rohr, C. N. Scott, A. A. Seletz, Walton S. Shepherd, W. F. Shirkey, J. S. Skaggs, Montcoal; J. W. Skaggs, Nitro; Claude B. Smith, W. C. Stewart, H. A. Swart, W. A. Thornhill, Jr., P. A. Tuckwiller, R. H. Walker, W. V. Wilkerson, Prenter; W. B. Wilson.

Lewis County Society—A. F. Lawson, Weston; J. E. Offner, Weston; Theresa O. Snaith, Weston; George Snyder, Weston; Guy Stalnaker, Glenville.

Logan County Society—Fred E. Brammer, Dehue; J. W. Carney, Logan; E. V. Jones, Jr., Logan; I. M. Kruger, Logan; E. H. Starcher, Earling.

Marion County Society—(The address is Fairmont unless otherwise indicated)—J. L. Blanton, C. J. Carter, J. B. Clinton, C. T. Francis, John P. Helmick, C. O. Henry, C. L. Holland, H. R. Johnson, Philip Johnson, C. L. Kinney, Ida May; L. R. Lambert, Joseph S. Maxwell, E. K. Munn, Watson; L. D. Norris, G. H. Traugh, Jesse R. Tuckwiller, Charles W. Waddell, E. D. Wise, Everettsville.

Marshall County Society—W. C. Boggs, Cameron; Charles G. Morgan, Moundsville; J. C. Peck, Moundsville.

McDowell Society—J. H. Anderson, Hemphill; R. H. Edwards, Welch; H. P. Evans, Keystone; E. O. Gates, Welch; C. R. Hughes, Kimball; R. V. Shanklin, Gary; M. W. Smith, Keystone; P. C. Spangler, Pageton; C. W. Vick, Jenkinjones.

Mercer Society—Ben W. Bird, Jr., Princeton; J. E. Blaydes, Bluefield; B. S. Clements, Matoaka; Henry C. Davis, Bluefield; Albert H. Hoge, Bluefield; F. J. Holroyd, Princeton; F. F. Holroyd, Princeton; E. W. Horton, Bluefield; F. M. Huff, Bluefield; O. G. King, Bluefield; J. I. Markell, Princeton; C. J. Reynolds, Bluefield; R. O. Rogers, Bluefield; C. T. St. Clair, Bluefield; C. T. St. Clair, Jr., Bluefield; Hampton St. Clair, Bluefield; J. R. Shanklin, Bluefield; J. R. Vermillion, Princeton.

Mingo County Society—George W. Easley, Williamson; O. P. Hodge, Matewan; J. C. Lawson, Williamson.

Monongalia Society—(The address is Morgantown unless otherwise indicated)—P. D. Crynock, E. F. Heiskell, B. C. John, Carl E. Johnson, W. C. Moser, J. C. Pickett, C. B. Pride, R. R. Summers, C. Truman Thompson, James Thompson, John H. Trotter, Eldon B. Tucker, Edw. J. Van Liere, F. R. Whittlesey.

Ohio Society—(The address is Wheeling unless otherwise indicated)—R. J. Armbrecht, Russell B. Bailey, C. S. Bickel, R. C. Bond, C. H. Clovis, Mabel C. Clovis, Ivan Fawcett, H. G. Little, D. A. MacGregor, C. G. McCoy, Elm Grove; W. C. McCuskey, E. S. Phillips, H. T. Phillips, Robert J. Reed, Jr., J. W. Ruckman, West Liberty; Howard Sauder, W. M. Sheppe, R. J. Snider, J. K. Stewart, H. G. Weiler.

Parkersburg Academy—(The address is Parkersburg unless otherwise indicated)—H. M. Campbell, A. M. Dearman, J. M. Depue, Spencer; Welch England, W. R. Goff, T. L. Harris, G. D.

Jeffers, A. M. Jones, L. P. Jones, Pennsboro; Athey R. Lutz, R. B. Miller, R. C. Newman, Spencer; B. O. Robinson, James L. Wade, R. H. Wharton, A. C. Woofter.

Potomac Valley—Thomas Bess, Keyser; R. W. Love, Moorefield; H. W. Rollings, Jr., Wardensville.

Preston Society—A. V. Cadden, Hopemont; Blanche B. Miller, Eglon; Harold C. Miller, Eglon.

Raleigh Society—O. C. Ashton, Beckley; L. R. Ayers, Beckley; M. C. Banks, Raleigh; W. C. Covey, Winding Gulf; R. P. Daniel, Pemberton; E. N. Dupuy, Beckley; S. A. Ford, Edwight; F. S. Harkleroad, Mabscott; L. G. Houser, Beckley; K. M. Jarrell, Beckley; W. G. Moran, Fireco; C. A. Smith, Raleigh; J. M. Teter, Glen Hedrick.

Summers County Society—Charles L. Howard, Hinton; D. M. Ryan, Hinton.

Wetzel County Society—L. Phelps Stanley, Pine Grove.

Wyoming Society—Ward Wylie, Mullens.

Medical Visitors—George E. Bennett, Baltimore, Md.; James A. Boon, New York City; Bert Bradford, Jr., Charleston; S. M. Ball, Spencer; Jesse G. M. Bullowa, New York City; Wm. Thornwall Davis, Washington, D. C.; William J. Engel, Cleveland, Ohio; Edwin J. Euphrat, Elkins; R. M. Ferrell, Ronceverte; Julius Friedenwald, Baltimore; Emerson Gillespie, Canton, Ohio; D. E. Greeneltch, Wheeling; M. Gearhart, Charleston; G. S. Hartley, Clifton Forge, Va.; Alan S. Horwitz, Charleston; John B. Hozier, Charleston; Virginia T. Huff, Bluefield; James P. King, Radford, Virginia; Charles W. Mayo, Rochester; K. M. McPherson, Beckley; Edwin C. Mitchell, Memphis, Tenn.; Thaddeus L. Montgomery, Philadelphia, Pa.; W. B. Morrison, Columbus, Ohio; William B. Porter, Richmond, Va.; Alex St. Clair, Richlands, Virginia; George H. Thomas, Staunton, Va.; Nathan B. Van Etten, New York City; W. R. White, Richmond, Virginia.

Non-Medical Visitors—A. W. Garnett, Charleston; Jack T. Gocke, Clarksburg; James W. Harris, Mullens; Ralph Hartman, Charleston; Ralph Jones, Parkersburg; William Kenny, Charleston; C. P. Loranz, Birmingham, Ala.; Albert G. Matthews, Charleston; Albert Mendeloff, Charleston.

General News

GOLDEN CLINIC DAY

The fifth annual scientific program presented by the Golden Clinic will be held at Elkins from nine o'clock a. m., until midnight on Saturday, August 12, 1939. The scientific program will be held in the main auditorium of the Katherine Elkins Hitt Memorial for Nurses at the Davis Memorial Hospital. All Association members and their wives have been cordially invited to attend.

The morning session will be given over to Dr. James F. McCahey of Philadelphia, instructor in Genitourinary Surgery, Jefferson Medical College, and Dr. David Scherf of Vienna. Dr. McCahey will lecture at 9:30 o'clock on "Testis Endocrine Relation in Man," and "Adrenal Cortex Therapy in Hypogonadism." Dr. Scherf will lecture on "Respiratory and Circulatory Disturbance in the Climacterium." From 11:30 o'clock until noon will be devoted to clinic exhibits.

Dr. Earl B. Craig, Professor of Gynecology, Hahnemann Medical College, Philadelphia, and Dr. Robert H. Kennedy, Associate Professor of Clinical Surgery, Columbia University Postgraduate Medical School, New York City, will present the afternoon program. Dr. Craig will speak on "Fundal Malignancy of the Uterus," with motion picture demonstration of the Craig-Benson surgical technique for Type I fundal malignancy. Dr. Kennedy will talk on "Function of Joints in Relation to Fracture Treatment."

Dr. Charles L. Schmitt of the staff of the Pittsburgh Skin and Cancer Foundation will speak on "Syphilis" at the evening banquet. Dr. Oscar B. Biern, Huntington, will act as toastmaster. Dr. Ray M. Bobbitt, Huntington, Association President, will also make a talk at the banquet. Dancing until midnight will follow at the Elkins Country Club.

During the noon hour, the West Virginia Heart Association will meet at the "Coach and Four" tavern on the Norton road, route 250. Dr. R. J. Condry of Elkins will preside. Luncheon for the visiting ladies by the wives of the staff of the Golden Clinic will be served at 12:30 o'clock at the Elkins Country Club.

Golf for the visiting physicians and their wives is scheduled from 4:15 to 6:00 o'clock at the Country Club.

DR. HINSDALE RETURNS

Dr. Guy Hinsdale, Medical Director of the Greenbrier, White Sulphur Springs, has recently returned from a trip to London where he attended the Council Meeting of the International Society of Medical Hydrology, and also the Royal Society of Medicine of which he is a Fellow.

During his visit in England, Dr. Hinsdale made visits to the Royal Leamington Spa and to Droitwich Spa. He returned to White Sulphur Springs on July 11 in time for the last day of the State Convention.

FILM ON INTOXICATION

"Testing the Drinking Driver" is the title of the new twenty-minute sound slide film which is now ready for distribution by the National Safety Council, 20 North Wacker Drive, Chicago.

This film presents in an instructive manner the proper procedure to follow in securing convictions of drivers who are under the influence of alcoholic liquor. Its purpose is to encourage the use of scientific tests for driver intoxication, such as chemical tests of body fluids or breath.

The film is technically accurate from the standpoint of chemical test procedure and proper presentation of evidence in court. At the same time it is sufficiently dramatic so as to be of interest to almost any audience. Local medical societies should find this film very interesting, since many physicians are called upon to diagnose the degree of alcoholic influence for law enforcement purposes.

MALE BIRTHS

A theory offering an explanation for the definite increase in the proportion of male births following a long war is summarized in the July issue of *Hygeia, The Health Magazine*, from an article in the *Statistical Bulletin of the Metropolitan Life Insurance Co.*

The explanation says that when war breaks out the young male population is quickly drawn into service and that consequently the young women of the warring nations are largely prevented from bearing children, either through the absence of their husbands or because no young bachelors are at home for them to marry. With the return of the young men from the war there is a marked increase in marriages and births, and thus a large proportion of the parents are the younger adults. Since the ratio of males to females at birth is higher when the mothers are young, it is only natural that the ratio of males shows a decided rise after a war.

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County Society News

CENTRAL WEST VIRGINIA

The Central West Virginia Medical Society met at Webster Springs, in the Oakland Hotel, July 8, 1939. Following dinner, the regular order of business was dispensed with and a scientific program was presented by Dr. J. O. Rankin, Wheeling, who discussed "Intra-Articular or Joint Fractures."

The name of Dr. F. A. Irmen, Weston, was presented by Dr. Everett Walker, and the name of Dr. A. E. Long, Weston, was presented by Dr. A. B. Bowyer, for membership to the Central West Virginia Medical Society. It was moved that these doctors be elected to membership without a report from the investigating committee. This motion was seconded and carried, with the understanding that the status of such an action would have to be investigated, particularly concerning Dr. Irmen, who is employed at the State Hospital, Weston, and is a resident of Lewis county.

From time to time previously, there has been some talk and suggestions that it would be feasible to unite the Central West Virginia Medical Society and the Lewis County Medical Society. It was moved and seconded that an invitation be extended to every member of the Lewis County Medical Society to meet with us at our Buckhannon meeting.

The question of approving the idea of low cost medical and surgical insurance was discussed at length. A motion was passed to send our delegates to the State Convention uninstructed as to their action regarding this question.

The attention of the society was called to the postgraduate course to be offered by the West Virginia State Medical Association, and that a diploma will be issued to anyone attending all meetings.

The next meeting of the Central West Virginia Medical Society is to be held at Buckhannon, and the committee in charge of arrangements consists of Dr. A. B. Bowyer, chairman; Dr. I. F. Hartman, and Dr. B. L. Page.

A. B. BOWYER, *Secretary*.

MARSHALL COUNTY

The regular meeting of the Marshall County Medical Society was held at Moundsville at 4:45

(Continued on page xxiii)

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(Continued from page xx)

p. m. on Tuesday, June 13. The meeting was devoted entirely to business matters. A new Board of Censors was elected, consisting of Dr. R. A. Ashworth, Dr. L. H. McCuskey and Dr. O. F. Covert. Dr. Paul Bradford, Dr. Harold Ashworth and Dr. O. P. Wilson were accepted as members.

There was a lengthy discussion by several members as to what to do with members of the society who do not comply with the rules and regulations, particularly in regard to newspaper advertising and other unethical practices. It was requested that such members be expelled from the society. The chair asked for a motion to that effect but none was made.

The society voted to accept the postgraduate refresher courses offered by the State Association and the State Health Department, beginning on July 18. It was agreed to hold the courses at four p. m. on the days specified, in the Moundsville Elks' Club.

On motion of Dr. R. A. Ashworth, the society voted to designate each Thursday as "Doctors' Day Off." Notices are to be posted in the office of each member notifying patients that physicians' offices will be closed each Thursday afternoon.

J. A. STREIBICH, *Secretary*.

MERCER COUNTY

The Mercer County Medical Society met June 22, 1939, in the Directors' Room of the Municipal Building, Bluefield. A paper, "Conservatism in the Treatment of Acute Ears," was read by Dr. C. T. St. Clair and discussed by Drs. J. E. Blaydes and C. T. St. Clair, Jr.

The committee which met with the Farm Security Administration supervisor regarding prepayment medical care reported to the society. A motion was made that the society reject the plan submitted by this committee, and that the doctors continue caring for these patients as heretofore. The motion was passed. Dr. Vass made a motion that the society appoint two general practitioners to further investigate the plan and find out the names of the families eligible for participation. This motion was seconded and carried. The president appointed Drs. Uriah Vermillion and O. S. Hare.

The discussion of the report of the low cost committee was continued. Dr. Blaydes moved that the society go on record instructing its delegates to vote against any prepayment plan for medical and hospital care. This motion was seconded by Dr. Vass and carried.

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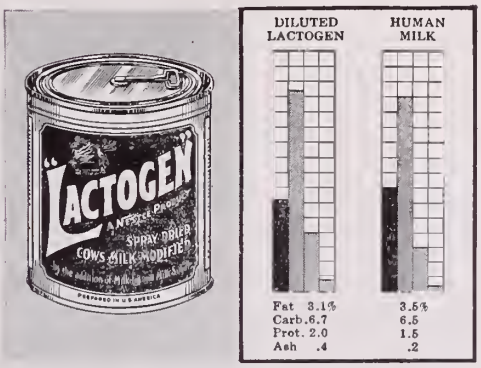

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The Wagner Health Bill was discussed by Dr. Hare who complimentad the work being done by the A. M. A. to defeat it. Dr. Hare moved that Mercer County Medical Society go on record as voting against the Wagner Health Bill, and that the secretary mail a copy of the resolution to our representatives in Washington and to the home office of the A. M. A. This motion was seconded by Dr. Slusher and there was not one dissenting vote.

Dr. F. M. Huff discussed the needs for medical and hospital care by indigents in Mercer county, and cited several emergency cases. Several members felt this should be provided through community, county, or state taxes. In order that this problem might receive further consideration, Dr. Scott moved that a committee be appointed to study ways and means whereby the indigents can be cared for, and that this committee report at our September meeting. The motion was seconded by Dr. Steele and carried. The committee was appointed as follows: Drs. R. O. Rogers, O. G. King, A. H. Hoge, and F. M. Huff.

O. G. KING, *Secretary.*

POTOMAC VALLEY

Dr. Ray M. Bobbitt of Huntington, Association president, was the guest speaker at the June 21 meeting of the Potomac Valley Medical Society which was held at the New Century Hotel at Romney. Members of the Allegheny-Garrett Medical Society at Cumberland, Maryland, were special guests for this occasion and there was a fine representation of both West Virginia and Maryland doctors.

Dr. Bobbitt spoke on various phases of medical economics pertaining to the State Association and urged a large attendance at the state meeting at White Sulphur Springs. A social hour preceded the dinner meeting.

The first lecture of the postgraduate series was held at the Potomac Valley Hospital, Keyser, on July 21 with an attendance of 20 doctors, four nurses and one dentist. Dr. E. D. Plass of the University of Iowa presented a wonderful lecture on obstetrics.

E. A. COURRIER, *Secretary.*

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(Continued from page 375)

protein derivative of tuberculin certain cases with pulmonary calcification were recorded, with failure of reaction either to this type of tuberculin or old tuberculin.

Most investigators in the past interpreted these cases as illustrations of obsolete infection, and there is increasing reason to accept this explanation. Specific examples with calcification, once positive and subsequently of lowered sensitivity or even negative to tuberculin, have been frequently recorded. A plausible explanation of the waning of allergy is to be found in reports of the sterility of most of the old calcareous foci of primary infection.

ALLERGY AND RECOVERY

More direct and significant evidence, however, on the waning of allergy with recovery from active lesions of tuberculosis is available in the records of BCG vaccination. Hundreds of thousands of human beings have been deliberately inoculated with controlled dosage of the attenuated but living BCG, and careful records have been kept of the intensity of the tuberculin reaction in relation to the course of the infection set up. In practically all of those infected intracutaneously with 0.15 mg. BCG or more, the reaction becomes positive in a few weeks. After reaching a period of maximum intensity it then tends to wane, and becomes negative after twelve months.

In the light of these observations of complete healing with eventual sterility of spontaneous human lesions, on the one hand, and decrescence and disappearance of the allergy produced by artificial human infection on the other, it would not be surprising if the tuberculin reaction eventually became negative in all of the cases of calcified primary lesions, if no further infection occurred. Indeed there is good reason to believe that in many cases of positive tuberculin reaction in the presence of calcified foci of tuberculous infection, the reaction is positive not because of the presence of the calcified lesion, but because of a later superinfection.

With the general decline of tuberculosis in the community, with corresponding lessening opportunity for reinfection, it is only to be expected that an increasing number of non-reacting cases with calcification will be found. It is well to keep the fact in mind that the calcified lesions discovered in any survey today represent not the index of tuberculous infection of the present period, but the remains of tuberculous infection in the past.

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Moreover, there is still room for doubt that all the lesions commonly diagnosed as calcified nodules of primary tuberculosis are really tuberculous. Particularly in a community where calcifications are present in half of the adolescent population, as in certain of the regions studied by Lumsden and Gass and their colleagues, it is pertinent to inquire if there could be any other cause than tuberculosis for the calcifications found.

ANERGY

Anergy in the presence of active tuberculosis of the primary or "childhood" type has been less frequently recorded and in some cases merely represents delay in the appearance of allergy. It was pointed out long ago that x-ray evidence of developing primary tuberculous infiltration of the lung may precede the development of a positive reaction. Anergy in the presence of well established lesions believed to be tuberculous is subject to much uncertainty, because of the difficulty in proving the diagnosis of primary tuberculous infection in these cases. The shadow itself is not distinctive, and it is the course of the lesion rather than its character, as seen in the x-ray film, that is important. Infiltrations that disappear are apt to be of pyogenic origin; those that persist are probably tuberculous. Most of the reported cases of anergy in the presence of active primary tuberculosis have not been given the benefit of a time trial. A diagnosis based on persistence of the infiltration, is still subject to much question, for increasing understanding is bringing to light other causes for such infiltrations, such as

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unresolved pyogenic infections, bronchiectasis, etc. In brief, in a case of tuberculin anergy in the presence of supposed active primary tuberculosis, the burden of proof is on the diagnosis of tuberculosis.

As to the necessity of a reliable tuberculin there can be no argument. It is true and has been known for years that the various preparations of old tuberculin on the market vary greatly in their capacity to elicit reaction. It was this fact that led to the search for a substance of specificity, stability and constant potency, that could be substituted for the highly variable old tuberculins in use. It is hoped that the purified protein derivative of tuberculin will fulfill this need.

TUBERCULIN IN CASE-FINDING

For present purposes a distinction must be drawn between tuberculin x-ray surveys for the separate purposes of determining the infection index regardless of morbidity, and tuberculosis case-finding. No serious doubt has been expressed over the value of tuberculin as a mechanism for detecting ordinary cases of pulmonary tuberculosis. The studies cited, do not deal with this subject. On the other hand, studies of the tuberculin reaction covering more than thirty years, show that the overwhelming majority of patients with frank tuberculosis are positive to tuberculin; that they react to small doses and to most of the many types of tuberculin on the market. Clinical disease has not infrequently been observed to develop with alarming rapidity after the development of a positive tuberculin reaction, while there is no proven record of its development in the absence of a positive reaction.

In the light of this experience no reason is apparent to depart from the present established custom of using tuberculin in case-finding programs.

On the other hand, good reason has been given for pause in our efforts to determine epidemiological indices of the amount of infection until more knowledge is obtained. The concept of infection that is adopted will have to meet the issue of existing as opposed to obsolete invasion by tubercle bacilli. From a practical standpoint it seems doubtful if there is nearly as much significance in determining how many ever have been infected by tubercle bacilli, as in finding how many harbor bacilli at the moment. Whether this can be done or not remains to be seen.

Esmond R. Long, M.D., Tuberculin Anergy and the Variability of Tuberculins, Amer. Rev. of Tuber., Vol. XXXIX, No. 4, April, 1939.

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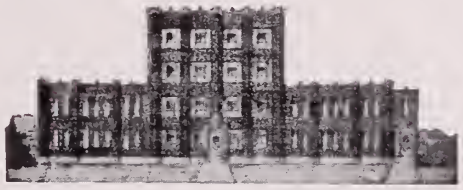

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Woman's Auxiliary

FAYETTE COUNTY

The Woman's Auxiliary to the Fayette County Medical Society met on June 6 for a picnic at Beckwith 4-H Camp. Eight members attended and brought their children.

The new officers of the Fayette Auxiliary for the coming year, are as follows:

President, Mrs. R. A. Updike, Montgomery; president elect, Mrs. W. P. Bittinger, Summerlee; first vice president, Mrs. C. W. Stallard, Montgomery; second vice president, Mrs. H. C. Skaggs, Montgomery; third vice president, Mrs. George Fordham, Powellton; recording secretary, Mrs. H. F. Troutman, Page; corresponding secretary, Mrs. W. B. Davis, Elkridge; treasurer, Mrs. D. W. Shirkey, Montgomery.

MRS. W. B. DAVIS, *Secretary*.

KANAWHA COUNTY

The Woman's Auxiliary to the Kanawha Medical Society met at the Charleston Woman's Club on April 11. Mrs. A. A. Wilson, president, presided over the meeting. Twenty-eight members attended. The following officers were elected:

Mrs. Ray Kessel, Charleston, president elect; Mrs. R. H. Dunn, South Charleston, first vice president; Mrs. R. K. Buford, Charleston, second vice president; Mrs. S. L. Bivens, Charleston, third vice president; Mrs. A. A. Seletz, Charleston, recording secretary; Mrs. Ralph Pence, South Charleston, corresponding secretary; Mrs. H. M. Beddow, Charleston, treasurer.

On May 23, 1939, the Woman's Auxiliary to the Kanawha Medical Society gave their annual tea in honor of the graduating nurses from Charleston's five hospitals and in honor of the new officers of the Auxiliary. The tea was held at Edgewood Country Club. Mrs. A. A. Shawkey and Mrs. W. A. McMillan presided at the tea table. The retiring president and the new officers received the guests.

MRS. WM. C. POLSUE, *Secretary*.

LOGAN COUNTY

The Woman's Auxiliary to the Logan County Medical Society met on June 6, 1939 with Mrs. R. W. Roberts and Mrs. Harold Vanhoose who

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were co-hostesses at the home of Mrs. Roberts. The members were entertained with a bridge luncheon.

Mrs. J. A. Stumbo was elected corresponding secretary to succeed Mrs. J. W. Lyons, who resigned from the office.

Mrs. A. M. French was appointed *Hygeia* chairman. Mrs. J. L. Patterson was named a delegate to the state meeting. Mrs. Harold Vanhoose and Mrs. J. W. Carney were appointed alternates to the state meeting.

MRS. J. A. STUMBO, *Secretary*.

MARION COUNTY

The Woman's Auxiliary to the Marion County Medical Society met on May 23 at the Club House of the Fairmont Woman's Club. Mrs. J. R. Tuckwiller, president, presided at the meeting and thirty members were present. Mrs. W. H. Longwell presented a review of the play "What a Life." Mrs. C. W. Waddell was the vocal soloist. The next meeting was planned for June 30 at Dr. Clinton's camp.

MRS. J. W. DAVIS, *Secretary*.

RALEIGH COUNTY

The Woman's Auxiliary to the Raleigh County Medical Society met at the Beckley Hotel, Beckley, on May 30, 1939. Mrs. E. S. Dupuy, president, presided over the meeting and sixteen members were present. Mrs. Newton Dupuy spoke on a tour of Europe. Mrs. D. W. Duke gave two readings—"Carol Smile" and "One, Two, Three."

Mrs. D. C. Ashton and Mrs. J. E. McKinzie were appointed as delegates to the state meeting at White Sulphur Springs. Mrs. J. E. McKinzie was elected to replace Mrs. Ira Fisher as recording secretary. Dr. and Mrs. Fisher have left the county.

MRS. W. C. MAYS, *Secretary*.

SKELETAL DISEASE

Morquio's disease, a hereditary condition which results in deformities of the skeleton, apparently is transmitted to sons through their mothers, the same as hemophilia, the delayed blood clotting condition common in some of the royal families of Europe, A. Wilmot Jacobsen, M.D., Buffalo, N. Y., asserts in *The Journal of the American Medical Association* for July 8.

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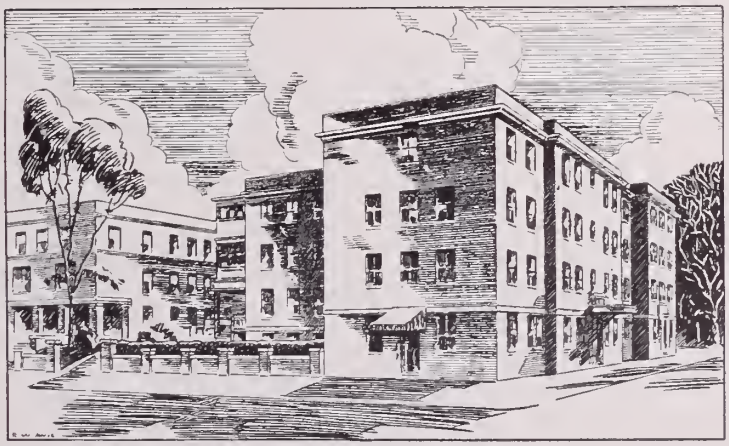

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Miss Margaret Pettus, R.N., Instructress Martha Jane Jordan, R.N., Supervisor Hilda Sayre, R.N., Supervisor

The technical name for the disease is "hereditary osteochondrodystrophia deformans." It is a rare condition in which the typical example is characterized by changes in bodily conformation resulting in the main from shortening of the spinal column and of the necks of the thigh bones. The patient is moderately dwarfed, with pigeon breast, hunchback and an inward curvature of the spine. Because the narrowing of the vertebral bodies includes those of the neck region, the neck is so short as to seem absent, and the head, although of normal size, appears large. Changes in the pelvic bones and the upper ends of the thigh bone cause the patient to stand in a semi-crouching position. The joints are restricted in motion, and the gait is stiff. Other than the bony defects there are no organic changes, and the mentality is normal.

Dr. Jacobsen's paper is based on a study of the cases of four members of a family who were known to have inherited the defect, an examination of six in the family who were considered normal, with no bone defects being found, and an investigation of the family pedigree. Out of forty-four men in five generations of the family, it was found that twenty were affected.

"The story of the development of the deformities in the affected members of this family is the same in all cases," the doctor says. "All were apparently normal at birth. At the age of five or six years the spinal changes had become sufficiently marked to be noticeable to the parents as a 'round shoulder' posture. Thereafter the condition was inevitably slowly progressive until the characteristic deformity had occurred.

"The mode of heredity of the defect in this family as revealed by the pedigree is of peculiar interest because of the large number of affected persons. It appears to be a characteristic that is carried by the sex chromosome. It is known that some traits in addition to sex are regularly carried by the sex chromosome, and the traits whose genes are shown to be located in the sex chromosome have proved always to be recessive. With this type of heredity the mating of a normal woman yields all normal offspring. The sons will be completely normal but the daughters will be carriers, capable of transmitting the disease to their sons.

"A woman who is a carrier of a sex-linked recessive disease who marries a normal man will produce all normal daughters, while nearly one-half of her sons will be affected and one-half normal."

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Vol. XXXV September, 1939 No. 9

DIAGNOSIS AND TREATMENT OF THE IRRITABLE COLON*

By PHILIP W. BROWN, M. D.**
Rochester, Minnesota

"THE digestive system of man is a fundamental endowment; it is the greatest attribute he possesses and is to a large extent responsible for obtaining his so-called preeminence over all living things."[2] Certainly the phenomena of mixing, digesting and assimilating food and the ultimate elimination of the products of metabolism of food constitute spectacular and mystifying processes. For this reason a disturbance of any of these phenomena by disease or through the nervous system often lends itself to weird types of therapy. The less accessible and the more complex any function is, the more it is steeped in mystery. The amazing variety of diets and drugs that is suggested for treatment of digestive disorders shows varying degrees of good sense and bizarre recommendations. The actual conditions of disease that may develop in the digestive tract are not always easy to diagnose, but of equal, and often greater, perplexity is the certainty that the dysfunction is not due to disease and the guidance of the patient along suitable lines of treatment.

THE AUTHOR

Dr. Brown, graduate University of Pennsylvania School of Medicine, Fellow American College of Physicians and Diplomate, American Board of Internal Medicine; Assistant Professor of Medicine, University of Minnesota Graduate School of Medicine.

A most difficult question to answer is: What shall we do for patients who have nervous or functional conditions of the bowel? The terms mucous colitis, spastic colitis, simple colitis and intestinal stasis are often mentioned and serve only to confuse the problem. This word "colitis" continues to be sadly misused and overworked. Correctly used, colitis refers solely to inflammatory changes of the colon. For all other disturbances of the bowel, the word colitis should not be employed. The chief objection is that it implants in the patient's mind the conception of a real disease. We find the term colitis applied to such complaints as abdominal distress, with or without constipation; to diarrhea, either continuous or alternating with periods of constipation and lastly, to the actual condition,

*Read before the Kanawha Medical Society, Charleston, West Virginia, May 9, 1939.

**Division of Medicine, The Mayo Clinic.

colitis. It is rather surprising that only about a third of the patients who complain of diarrhea actually have inflammation of the bowel.

Often, one of the problems in the study of conditions of the bowel is that of conducting the necessary studies. One may find it difficult to obtain a careful examination of the stool for parasites, ova, fat, blood and pathogenic bacteria; likewise, there may be doubt as to the correct interpretation of the sigmoidoscopic and röentgenologic findings. The excuse may be offered that either the wherewithal for performing all of these steps is not available or the patient does not wish to have such steps taken. One wonders if we should assume the responsibility of treatment without first making reasonable effort to establish a correct diagnosis. Oddly enough, the physician is criticized more for error if he makes a diagnosis of a functional condition, if organic disease is later recognized, than he is for failure to effect a cure of patients who have ulcerative colitis or cancer. Hence, we appreciate the responsibility which is imposed when one makes a diagnosis of "functional or irritable bowel." It is obvious that every patient who has abdominal distress need not be subjected to a long array of studies, but at the first consultation it should be pointed out that, if symptoms do not abate in a short time, one cannot continue to assume responsibility unless essential studies are carried out. If this were not so, we could all practice the pleasant art of prescribing through the mail or of sending pearls of wisdom through the air.

HISTORIES

Usually the patient's history is highly suggestive, yet again one is reminded of histories typical of functional disturbances in which it was established later that the patient had regional enteritis, a plaque type of cancer of the colon, a benign tumor or a polyp of the intestine, and related the occasional but dramatic psychoneurotic narrative which is typical of patients who have cancer in the tail of the pancreas. The following case was encountered while this paper was being prepared:

REPORT OF CASE

A woman, aged thirty-four years registered at The Mayo Clinic in 1930; she complained of a low backache which had persisted since the birth of her boy five years previously. Also for three years she had suffered from attacks of abdominal cramps and diarrhea, which lasted from a few days to six weeks. She was nervous and easily upset by many things. At that time, disease of the bowel could not be demonstrated and a diagnosis of irritable colon was made. She remained under symptomatic treatment for a few days and felt much improved.

On her return, in 1939, she apologized for asking for another examination, as her complaints were "exactly the same" as previously. At this time the röentgenologic examination after a barium enema disclosed a fairly extensive hyperplastic involvement of the terminal six inches of the ileum with an intervening normal region and then another longer portion of regional enteritis. Operation has been undertaken and the diseased region has been successfully resected.

Hence, we are constantly working between the two evils; either calling an organic condition functional, or implying to the patient who is suffering from a functional disorder that some organic disease exists, so that only the death of the patient at a ripe old age will bring a halt to the problem.

The basis for the proper management of patients who complain of an irritable colon or a functional condition of the bowel must be that of appreciating their background. It is essential, insofar as is possible, to rule out organic disease of the bowel. Wakefield and Mayo[3] have suggested a method for appraising the factors that contribute to dysfunction of the bowel. Around the center or hub of social crises radiate the problems of associated systemic disease, fear of disease, heredity, congenital faults, environment, irregular habits, the use of laxatives and allergy to foods. As Logan has insistently taught us, one must search and dig until the patient answers the question, "When were you last well?" Possibly this is the clinician's equivalent of what the psychiatrist calls psychoanalysis. No doubt fear is the greatest single and compelling factor that precipitates trouble. Each of us is

a composite of all our ancestors; fortunately in many instances and unfortunately in a few, there will never be another like individual born, the sole exception being that of an identical twin. A fear of inheriting a weakness of one parent is not wholly justified; a 50 per cent mixture of a strain from the parent on the other side modifies the situation. We know that mental characteristics and physical features appear in the offspring to a variable extent but it often comforts the anxious patient to know that he does not have to have bowel trouble just because one of his parents had it.

OBSESSION NEUROSIS

When one encounters the patient who is determined to have the bowel complaint which is obviously a shield or a defensive mechanism, it is no easy matter to dispossess him of this determination. This in turn leads to the problem of the patient who has convinced himself that he has bowel trouble, that autointoxication exists and that mucus is significant. Reasonable effort and patience should be employed to explain these angles but beyond a certain point both the physician and the patient are wasting time and effort. A condition such as a true obsession neurosis or psychoneurosis, in which the bowel is utilized as the vehicle for expression, occasionally may be benefited by the psychiatrist but for the rest of us it is futile to persist in attempting to deal with such a patient until he has become embittered. Such patients do talk for so long and so loudly to all who will listen! It is often no easy matter to make even the comparatively intelligent and stable patients conceive of the dysfunction of the bowel as part of the picture of their general nervous and emotional fatigue. They are imbued so soon with the idea that the condition of the bowel is the cause and not the result of their general or nervous, apprehensive state. This emphasizes the necessity of learning when the patient was last in good health.

How can we answer the question regarding "autointoxication?" This is such an alluring term, even more vivid, and conjures up more notions than the thought of a celery fiber or a cabbage string rubbing on the sensitive bowel like sandpaper. The paradox of the sense of well being after passing a fairly large, well formed but soft stool, must be explained. The sense of satisfaction, as one hears it expressed, certainly impresses the anxious, colon-conscious person as a pearl of great price. But the sense of relief comes so promptly that it is impossible to conceive that the vast capillary bed so suddenly drains itself of "poison." Is it not striking how comfortable the patient who has megacolon is until an extreme degree of abdominal distention is attained? In such a case, two, three, or more weeks may pass with only minimal distress and without a bowel movement. The "unease" antecedent to defecation together with the rapidly acquired sense of well being after defecation must be due to a reflex through the sympathetic nervous system. It is reassuring to explain that the same phenomenon can be reproduced by filling the rectum wtih sterile cotton.

CONSTIPATION SUFFERERS

The person who suffers from constipation is often interested to know that most of the bacteria in the dry constipated stool are dead, whereas the liquid bowel content swarms with living bacteria, although we know that most of them are not pathogenic, if the mucosa is intact. Other patients gain the notion that man's upright position interferes with proper intestinal function. This fallacy may be removed by explaining that measurements in various four-footed animals show that the colon of man does not work against gravity more than the colon of an animal does. Mucus must be explained as not a symptom of disease, but merely a normal secretion which may vary in amount. It is a marvelous protection for the wall of the bowel, and it is poured forth whenever anything disturbs the bowel such as a cathartic, an enema, infection, emotional stress and so forth.

Insofar as possible, the patient's understanding of the problem is the first step in treatment. However, such patients must eat and some will need drugs; this in no way

weakens the contention that it is the patient and not the bowel that should receive first consideration.

GOOD FOOD

As the word "diet" implies that something is wrong with a person, I have found it well not to use that word and to speak of good food instead. Printed sheets of diets or lists of foods should not be used. I usually explain to the patient that the essential foods which contain the vital and health-giving substances are found in fresh meats, fresh fruits and vegetables, milk and eggs and insofar as weight permits, the concentrated energy-producing foods such as grains, potatoes and sugar products. One may also stress the fact that each patient is a law unto himself in respect to tolerating foods and that certain items may not be tolerated. If one is sure that items of foods which the patient claims he cannot tolerate are not merely disliked by him, such items are deleted. Simply to condemn pork, raw foods and so forth, is not logical. If there is too great a block of untolerated foods, supplementary vitamins may be employed, but the grocery store is the natural source of vitamins, not the drug store. Even if patients are truly allergic to one or more foods, it is striking how their tolerance parallels their state of nervous and emotional fatigue. Occasionally they may be able to eat an essential food without harm. Just recently a patient reported definite intolerance to all milk products, including butter. Also she did not eat fried foods because they disagreed with her, but it was learned that the only fried foods that she had tried had been fried in butter. It is odd that fried foods are so condemned. From the cooking standpoint, foods fried in hot grease, and especially in deep fat, are almost instantaneously sealed by the fat so that much of the food substances therein are retained intact. Of course, when the food is placed in warm fat and the temperature is then increased, the fat permeates the food and is undoubtedly relatively indigestible by many people. No brief is held for diet exclusively of fried food but I merely wished to illustrate peculiar notions that come down through the years. It is well to point out that some people are more comfortable if they ingest a minimal amount of coarse or raw vegetables but this should be stressed as an individual characteristic, and not as significant of disease.

The patient who suffers from constipation may worry about what he should do if the bowels do not move. Granting that the majority of people who consider themselves well have one or two movements daily, it should be pointed out that normally some have three or four movements daily, whereas others rarely have more than two or three a week. Much depends on the character of the food, completeness of digestion and the amount of fluid taken. We should counsel the anxious patient not to be in a hurry to take a cathartic or an enema. We should point out that normally the colon never becomes completely empty on defecation and that only the last portion of bowel content is ejected. The proctologists have no concern about lack of bowel movements in their cases postoperatively, as long as the rectum is empty. I suggest using a small enema of warm water (one-half to one pint) in forty-eight to sixty hours, but again the patient should be assured not to get worried about it. Occasionally older patients will be aided by small doses of cascara or senna after each meal, just as a little artificial aid.

DIARRHEA

For the patient who has diarrhea, especially with the alternating phase of constipation, which is inevitable after the bowel has been emptied completely, do not let him be in too big a hurry to rush from the pill jar to the bottle of paregoric; vary gently the amount of normally laxative foods and minimize the use of drugs. If diarrhea is rather constant, and if abnormal conditions, such as achlorhydria, states of deficiency and so forth are not present, there may be no great harm in allowing the patient to take occasionally a teaspoonful of paregoric to serve as a deterrent when he wishes to go where the toilet

may not be easily accessible. Because paregoric is not likely to be habit forming and can be used for emergencies, it is often of value. Mild sedation is usually helpful, a crutch but not a cure. Intermittent courses of bromides are suggested in doses of 15 grains (one gm.) two or three times daily for a week; then it should be omitted for four or five days to avoid the danger of bromidism. In some cases, a barbiturate may be better tolerated and it is prescribed in the rather small dose of one-half grain (0.032 gm.) of phenobarbital two or three times daily.

The inert powders, such as bismuth and kaolin are not often of any value in checking diarrhea. There is no harm in trying a powder, such as a teaspoonful of bismuth subcarbonate or a tablespoonful of kaolin three or four times daily. An occasional patient seems to get along with less trouble but in the majority of cases the powders are worthless. Calcium lactate or calcium phosphate in a dose of a heaping teaspoonful in hot water, to be taken orally three hours after each meal has benefited some patients, especially those more than fifty years of age. The multiple remedies purveyed for colitis by detail men from the drug houses bear witness to the futility of most of the products. There is a continual lack of understanding that one does not need medicine for the bowel; it is the patient himself and not his bowel that is at fault. Various types of vaccines have been suggested for use but I consider that the benefits reported come from the fact that a long course of vaccine therapy maintains repeated contact of the patient with the physician. The repeated conferences and not the injections are the valuable features of such therapy.

CONSTIPATION

For the patient who suffers from constipation, the need for indigestible, bulky materials such as karaya gum and agar has been overestimated. I often recommend a trial of the soft, bland materials but I see no need for persisting with such if benefit is not noted. I do not advise the use of bran as it is poorly tolerated by many patients and is more often an irritant than it is of value. Mineral oil does help many patients. If taken at bedtime or when the stomach is empty, it will interfere little or none at all with the absorption of vitamin A. Proctologists often object to mineral oil if there is associated anal irritation or after an anorectal operation; the oil seems to hinder normal healing and also decreases gentle dilatation of the sphincter by a normal, formed stool. Hence, except for the presence of anal lesions, there is no serious objection to the indefinite use of mineral oil.

There is continued search for an antispasmodic drug that will aid in reducing the cramps and pains that these patients experience. Thus far, I have not been able to see that much if any benefit has been obtained from use of drugs that are now available.

CONCLUSIONS

1. Colitis is colitis and only colitis.
2. Unless dysfunction of the bowel subsides promptly, careful studies must be undertaken to establish a correct diagnosis.
3. The patient who complains of abdominal distress associated with constipation has exactly what he says he has; not spastic colitis, mucous colitis or intestinal stasis.
4. The patient who complains of either continuous or intermittent diarrhea, has a sensitive, irritable intestinal tract. It is a manifestation of stimulation through nerve pathways and is not due to intestinal disease.
5. Proper food is essential, although the assortment will need to be adapted to the individual case. Vitamins in natural form are obtained at the grocery stores and meat stores, not at drug stores.
6. Drugs or vaccines are of little or no value. Judicious use of sedatives is a helpful crutch but not a cure.
7. Because any functional disorder is the result of conflict between the inherent characteristics of the individual and the problems of living which face him, success in the correction of the disorder will be determined by the degree to which this conflict is modified by treatment. Unless "the more abundant

life" becomes universal, these disorders will increase in frequency.

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OBSTETRICAL FORCEPS*

By CARL S. BICKEL, M. D.
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INASMUCH as forceps operations are the most frequent of all obstetrical operative procedures and that no recent paper has been read before our society upon this common but highly important subject, I wish to present the following discussion. The history will not be considered here, but only a few of the more practical points.

The incidence of use varies tremendously. No set figures can be given. Some men rarely apply forceps, prefering internal podalic version in difficult cases, whereas others will probably deliver fifty per cent of their cases by forceps. In hospital practice the incidence will probably be between ten and twenty per cent. Whether this is too high a proportion, I am not prepared to say.

The type of instrument used is not very important. It is the use or abuse of them that spells success or disaster. The DeLee or Schwarz modification of the Simpson forceps is ideal. Their cephalic curvature fits the infant's head, giving an even pressure throughout and the shanks are long enough to permit axis traction when desired. The Piper forceps for the aftercoming head in breech deliveries are just as ideal. No hospital or doctor doing home deliveries should be without these two. More types of forceps are only not necessary, but usually inadvisable, because it is much better that the "feel" of one instrument be mastered thoroughly, before attempting the use of other kinds.

Of the several functions given in our standard textbooks all but two must be discarded. The application of forceps for traction or rotation or a combination of these two is alone useful and necessary. The other indications: as a compressor, lever, irritator or dilator are not only obsolete in our present knowledge, but often extremely dangerous. This applies equally to the general practitioner and every specialist practicing the art.

THE AUTHOR

Dr. Bickel, graduate of Washington University, St. Louis, in 1929, spent the next four years in St. Louis and Memphis hospitals on surgery and obstetrics and gynecology. Practice limited to the latter field.

There are several prerequisites to the successful use of obstetrical forceps which are extremely important. They are as follows:

1. The cervix must be fully dilated. The term dilatable should not be added as this is a personal equation and disaster not uncommonly overtakes the man whose judgment is in error. If the cervix is well effaced and partially dilated, the application of forceps (if it is necessary to deliver the baby immediately) must be accompanied by Dührssen's incisions of that cervix.

2. The membranes must be ruptured.

3. The baby's head must be in midpelvis or lower.

4. The baby must present by the head.

5. The outlet of the pelvis must be adequate for the head to pass without mutilation.

6. Too early attempts at delivery must not be made. Most of the occiput posterior and deep transverse arrest positions will rotate spontaneously and / or descend further

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through the pelvis if the mother is given adequate time and rest intervals.

7. The bladder should be empty.

8. The vagina and perineum should be thoroughly ironed out and/or an episiotomy performed.

Low forceps deliveries, or to employ the term coined by DeLee, prophylactic forceps, have attained a definite place in obstetrical practice. There is little doubt that many individuals use them as an excuse to hasten the termination of labor. This may and occasionally does result in harm to the mother or baby. However, if the important prerequisites of such a delivery are conscientiously carried out, no harm will result, but on the other hand a safer delivery will be accomplished. These important prerequisites are:

1. The fetal head must be against the perineum, but still a safer rule to follow is that the head must be crowning to the size of a silver dollar.
2. It must be completely rotated.
3. The membranes must be ruptured.
4. The head must be through the cervix.

USE OF AN EPISOTOMY

The employment of an episiotomy will materially lessen the incidence of extensive perineal injuries and serious pressure upon the fetal head. This is particularly true of individuals with a rigid perineum. The incision may be made either before or after application of the forceps. If an episiotomy is to be performed the perineum should not be ironed out too vigorously, because in so doing the fascial planes will be broken down by the manipulations. A mediolateral incision is usually preferable, in that it may be extended into the ischiorectal fossa if necessary. A median episiotomy is dangerous, because if there is any extension it will be into the rectum. I continue to emphasize that this, as any other operative procedure, should only be performed in a hospital with a well appointed staff using good aseptic technique.

There are, however, certain cases in which the head will remain in the midpelvis. In this group are most of the difficult forceps deliveries. For convenience they will be divided into the oblique, occiput posterior and deep transverse arrest positions. In all of these cases an adequate labor with suitable rest periods must precede any attempt at delivery. At delivery the perineum and vagina are thoroughly ironed out or an episiotomy is performed. The position of the head is accurately determined, inserting a hand and palpating the posterior ear if necessary.

The oblique position of the head in midpelvis merely means failure of complete anterior rotation. The head may have descended through the inlet and remained in midpelvis in this position or it may have partially rotated from a transverse or posterior. Excluding soft tissue abnormalities such as contraction rings, the two most common causes for failure of further rotation and descent are a narrow pelvic outlet and military position of the head. If the outlet is not absolutely contracted, delivery from this position is usually relatively easy.

The delivery of an occiput posterior should not, generally speaking, be too difficult if the rules of patience and gentleness are followed. This is being repeated to impress it upon our minds again. The rule of patience pertains to the care of the mother. Do not interfere too early but allow adequate time for the mother to push the head as low as possible. The rule of gentleness pertains to the obstetrician and his attempts at delivery. There are several methods of delivery here and if one is not successful, do not persist in rough manipulations, but try another.

MANUAL ROTATION

Manual rotation is often successful and should be attempted first. The head is merely grasped in the hand and rotated to the anterior position. If this fails either a Scanzoni or Bill's maneuver is to be attempted. If the Scanzoni maneuver, the application of forceps and rotation with downward traction get no results, push the head back in midpelvis and rotate it in the plane of greatest pelvic dimensions. After the head is successfully rotated in either of the above procedures, the forceps

are removed and reapplied in their correct position. The delivery is then accomplished by downward traction, preferably using the Saxtorf method or axis traction.

There are a few cases which cannot be rotated without the use of great force. In these individuals it is far safer to desist from any forceful attempts early and either deliver them as an occiput posterior or occasionally perform a podalic version. If the head is to be delivered in a posterior position, great care must be taken with the perineum. Here the occipitofrontal diameter of the head passes through the outlet instead of the suboccipito-bregmatic. This being a larger diameter, it naturally requires greater dilatation of the vagina and more stretch on the perineum. A deep mediolateral or even bilateral episiotomy should be performed, thus literally laying the rectum and anus back against the coccyx.

DEEP TRANSVERSE ARREST

The head which has arrived and which remains in midpelvis in the transverse, the so-called deep transverse arrest is one of the most difficult forceps deliveries. In this instance we nearly always find one or a combination of the following conditions present:

1. A lack of proper flexion (a military head.)
2. An extremely close fit of the fetal head to the pelvis.
3. Prominent ischial spines (narrowing of the plane of least pelvic dimensions anterio-posteriorly.)
4. A narrow transverse diameter of the pelvic outlet.

Abnormalities number three and four are very often encountered in the same pelvis and the combination of the two is frequently overlooked. One measures the transverse of the outlet finding a narrow public arch. The posterior sagital is then measured and if it appears to be adequate, the lower pelvis is considered large enough to deliver the head easily. This is not enough. The antero-posterior diameter of the plane of least pelvic dimensions must be estimated in all these cases. If this contracture is present, an adequate posterior sagittal does not quite assume the same significance. Here the head is forced to remain in the transverse and is thrown forward against the rami of the pubes and ischii. It does not permit full utilization of the posterior half of the pelvic outlet.

Delivery in these cases usually taxes the ability of the attending obstetrician. Occasionally it is easily accomplished with rotation and downward traction. However, in the great majority it is not so simple. If after applying the forceps correctly to the biparietal diameters of the fetal head, rotation and descent cannot be accomplished, I have found the following very useful. The forceps in place, the head is displaced upward into the upper pelvis and is rotated at this level. Axis traction is then applied, bringing the head through the plane of least pelvic dimensions in the anteroposterior position. As the head passes through this plane it admirably fits the narrow transversely contracted pelvic outlet. Podalic version cannot offer more. To the expert at versions the risk will probably be about the same. To the general practitioner the intelligent use of forceps is safer to both mother and child.

BREECH DELIVERIES

The use of forceps to assist in the delivery of the aftercoming head in breech deliveries has saved many infants' lives. The instruments designed by Dr. Piper are quite satisfactory for this purpose. The application is extremely simple after the body of the baby has been delivered. The head is guided into the pelvis both by gentle pressure from above and traction below, maintaining good flexion by a finger in the mouth. With the head through the cervix and the occiput anterior, the baby's body is lifted high. The forceps are then applied to the fetal head in exactly the same manner as in an occiput anterior vertex presentation, with the exception that only a mild pelvic curvature is present and the handles need not be lifted so high to begin insertion of the blades. After proper application more flexion is obtained if desired and the head is delivered by traction. Here again

attention is called to the performance of a mediolateral episiotomy of sufficient depth, if there is any perineal resistance. This incision should be made before beginning delivery of the body.

A brow presentation is the most dangerous cephalic presentation with which we have to deal. Forceps, if used in this situation should only be applied to obtain flexion of the head. Traction is dangerous and must not be employed. After the head is flexed the expulsive forces of the mother are allowed to come into full play, resulting in descent and internal rotation. If it is not possible properly to flex the head, version is the method of choice.

In face presentations forceps delivery is permissible only when the occiput is posterior and the head has descended to the perineum with the chin presenting under the symphysis.

The use of forceps for a high operation and especially on a floating head cannot be too emphatically condemned. There is, with extremely rare exception, absolutely no indication for such abuse of the instruments. It has been repeatedly shown that a high fetal mortality and extensive maternal damage usually follows. The risk is out of all proportion to any advantages gained. A podalic version is far preferable in the great majority of these cases. It must be stressed again, that an adequate labor, as to duration and quality of contractions, with suitable rest periods, be consummated before delivery is attempted. Occasionally podalic version is not feasible; then, if the case has been properly cared for, a low cervical section is a safer procedure.

In conclusion permit me to quote Dr. DeLee: "It is the man behind the forceps more than the instrument itself that accomplishes the results." They are a valuable adjunct to obstetrics but it must be clearly realized that they have definite limitations.

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BROMIDE INTOXICATION

Bromide intoxication, resulting in mental aberrations, has become a common condition, and, judging from the hundreds of cases which have been reported, it is prevalent in all parts of this country, Lewis P. Gundry, M.D., Baltimore, declares in *The Journal of the American Medical Association* for August 5.

Improper use of physicians' prescriptions by disregarding instructions and taking large frequent doses, and repeated refilling of a prescription which calls for a moderate dose of bromide, with self medication through the many proprietary medicines containing bromides, are the chief causes of the condition, Dr. Gundry says. As preventive measures, he recommends that all prescriptions should be marked "not to be refilled" and that the public be warned against self medication.

Patients with chronic alcoholism are particularly prone to develop bromide poisoning, as such persons frequently take excessive doses of any medication. Several patients in the series of fifteen reported by the author literally substituted bromide solutions for alcohol at the end of a spree.

The severity of the symptoms is closely related both to the personality and to the physical well being of the patient.

Describing the mental symptoms of bromide poisoning in his series, Dr. Gundry states: "The patient was often uncooperative, noisy and even actively combative. The mood varied from one of elation to one of abject fear or terror. The speech was usually thick and jumbled; it was slurred to such an extent as to be almost unintelligible in some cases. There were many delusions and hallucinations; the patient frequently carried on confused conversations with imaginary persons on the ceiling or saw large men and animals of all descriptions. He frequently believed that he was to be executed or that some members of his family had been killed. Complete disorientation was often observed, and defective memory with a tendency to confabulation was noted in several instances. In cases of such severe intoxication there was usually a lethargic or semicomatose state. At times delirium was present."

CORONARY DISEASE AND CORONARY THROMBOSIS*

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It is perhaps best to consider coronary insufficiency along with the more striking phase of coronary disease, coronary thrombosis, since the two conditions are closely related, making it difficult to tell where coronary insufficiency ends and coronary thrombosis begins. Repeated attacks of anginal seizures may occur, the patient between attacks apparently enjoying good health. Then, later, a more severe attack occurs, which is not relieved by nitrites or other vasodilators. Instead of the pain subsiding in a few seconds or minutes at most, the agony persists for hours or days and a definite coronary occlusion is diagnosed.

Whether or not coronary occlusion is increasing, is as yet uncertain. Beyond doubt we are diagnosing more cases than in former years. Coronary disease is participating in the apparent increase of all heart diseases. The increase of coronary disease, if any, may well be due to several factors: The lengthening span of life, which permits more people to reach an age when heart diseases are more prevalent; the ravages of past attacks of influenza recurring periodically since the great pandemic of 1918 may have left the heart a fallow field in which degenerative heart diseases thrive. Moreover, we are more heart conscious than in past years; more on the lookout for coronary diseases, and with better facilities for diagnosing the mild and unusual cases. Since coronary disease occurs more frequently in the business or professional man than in the laborer or farmer, it seems logical that the strain of carrying on a business or profession during the past ten years of deep depression may have added materially to the number of cases of coronary insufficiency and coronary occlusion.

THE AUTHOR

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Coronary disease may occur in early years, but is found more frequently in advanced life. Most cases occur in the sixth decade. It is four times more common in men than in women, and more common in Jews than in Gentiles. Coronary thrombosis has an especial affinity for physicians, more than one-third of our profession dying of this disease alone. The negro laborer or field hand is singularly immune to coronary disease. The negro of higher intelligence whose work entails mental stress will show about the same incidence of coronary disease as the white man.

Coronary disease may occur without any demonstrable heart disease, either clinically or by electrocardiograph. Usually, however, some degenerative heart condition precedes the attack. Many factors contribute to coronary infarction. The development of a thrombus, the lodgment of an embolus, the pathological changes incident to arteriosclerosis and disease of the aorta in the region of the coronary orifices, all are factors.

Ambulant angina pectoris usually attacks elderly people and the underlying anatomical substratum is sclerosis of the coronary arteries. On account of the sclerosed arteries the blood supply of the heart muscle is materially decreased. The vessels which meet the requirement when the patient is at rest may be inadequate when the requirement is materially

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increased. Changes in coronary thrombosis show the various steps, including simple obstruction, necrosis, thrombosis and embolism.

DIAGNOSIS

A well taken history is of immense value and in some coronary conditions, especially coronary insufficiency with angina pectoris, the history may give the only clue. There is no definite symptom by which coronary thrombosis can be diagnosed. Every suspected case should have the benefit of intensive study. In case of doubt, resolve the doubt in favor of the patient and institute rest and proper therapy immediately. The early and mild cases are the most difficult to diagnose. Yet, it is precisely in these mild and early cases, that diagnosis is of most value, for early institution of rest and proper therapy will give the patient a much better chance of recovery than in the very severe or neglected case.

Coronary thrombosis is often mistaken for acute indigestion. Sometimes coronary thrombosis is confused with upper abdominal diseases and diseases of the chest, notably, ruptured duodenal ulcer, gall-bladder infection, pericarditis, pulmonary embolism and pneumonia. Coronary thrombosis in its early stages is often confused with coronary insufficiency, angina pectoris. Some points of differentiation may be listed as follows:

ANGINA PECTORIS	CORONARY THROMBOSIS
1. Substernal oppression or strangling a matter of minutes or seconds.	1. A matter of hours or days.
2. Pain is brought on by physical effort.	2. Physical effort not necessary, often comes while at rest.
3. Symptoms of shock absent.	3. Symptoms of shock constantly present.
4. Gastrointestinal complications rare.	4. Vomiting and abdominal pain frequent.
5. Physical signs. (Cardiac) Meager.	5. Physical signs. Rapid, feeble pulse and weak heart tones frequent.
6. Rapid relief and return to normal when nitrites are taken.	6. No relief.
7. Temperature normal.	7. Elevated.
8. Normal leucocyte count.	8. Leucocyte count increased.
9. Electrocardiograph changes variable and negligible.	9. Coronary T wave and changes of the ST segment.
10. Pericardial friction rub absent.	10. Frequently present within the first three days after occlusion has occurred.
11. Sedimentation rate not increased.	11. Sedimentation rate always increased after a few hours.

It is often difficult, and sometimes impossible, to make an early differentiation between coronary thrombosis and some of the upper abdominal catastrophies, such as ruptured duodenal ulcers or gangrenous gall-bladder. Here the surgeon and the internist should closely collaborate, to the end that a correct diagnosis be made. If the case is one of coronary infarction, the patient should not be subjected to the shock attending an upper abdominal operation. On the other hand, if an upper abdominal viscus is ruptured, time is an important element. You can not wait for an indefinite period to be certain of your diagnosis, but you must operate within hours to save the patient's life. In spite of the most intensive study of the case, there will be occasions when a differentiation cannot be made, and when an exploratory laparotomy will be justified as a life-saving measure.

SYMPTOMS

If coronary narrowing and obstruction and even cardiac infarction come slowly and there is no excessive cardiac strain, there may be no symptoms, though the heart muscle may be extensively damaged and one or both coronary arteries occluded. If, however, sudden occlusion occurs in a large coronary artery with inadequate coronary arterial anastomosis, the symptoms may be extreme, with terrible pain, shock, collapse and sometimes death.

Between these two extremes all grades and varieties of symptoms may be found. The two most common symptoms found in coronary disease, especially thrombosis, are pain and dyspnea. The pain may be of any degree, usually it is substernal, often radiating to either or both arms, the neck, head and back. As previously stated, the pain may be epigastric and simulate the pain of gastrointestinal or gall-bladder origin.

Dyspnea may vary from slight breathlessness on exertion to the terrible struggling respiration and feeling of impending suffocation. Shock with prostration and collapse is a frequent early symptom and is due to vasomotor shock. The pulse will be very weak and the patient's face and sometimes the entire body bathed in cold sweat.

FEVER

Coronary thrombosis usually causes fever for a few days with a rise of temperature of a hundred to a hundred and one degrees; the grade and duration of fever depending on the size of the infarct undergoing necrosis. There is, sometimes, no sign of coronary disease. A fair amount of coronary disease may exist with little or no cardiac enlargement. Severe cardiac infarction following coronary thrombosis will commonly cause a sharp drop in blood pressure, whether or not blood pressure has been normal or high.

Electrocardiograms are of the greatest importance. Sometimes, they are normal in slight coronary disease, but with advanced coronary disease, they usually show changes in the Q and T waves and in the ST intervals. With coronary occlusion Q waves will appear, or become exaggerated if already present. The T waves may become low, inverted or of special shape. Within a few hours after onset a characteristic change appears in almost all cases of cardiac infarction, and consists of a high origin of the ST interval from the descending limb of the R wave in lead one, or lead three, with a corresponding depression of this ST interval in the opposite lead; that is, in lead three or one. (Pardee's sign.)

There usually appears a distinct Q wave in the QRS complex, or an exaggeration of it, if already present, in lead one when the ST interval is elevated in lead one, and in lead three when the ST interval is elevated in that lead. In lead four (the apex lead) the Q wave tends to disappear and the T wave becomes upright in the Q1 T1 type of electrocardiograph, while both these waves either remain unchanged or become exaggerated in Q3 T3 type. In a short time the ST interval tends to flatten out, but in either lead one or lead three there is left a deeply inverted T wave. (Cove plane). This inverted T wave may persist or become normal when the infarcted portion of the heart muscle is healed. The abnormality of the Q wave may be permanent and remain the only evidence of a past infarction.

The Q1 T1 type of infarction is in the apex of the heart and it is caused by blockage of the left coronary artery. We speak of this as apical infarction. The Q3 T3 type affects the base of the heart and is caused by obstruction of either the right coronary artery or of the circumflex branch of the left. This we call basal infarction. The Q1 T1 type is more dangerous than the Q3 T3 and more likely to terminate the patient's life in the first attack. The Q3 T3 type is rarely fatal in the first attack and gives a decidedly more hopeful outlook for the patient's recovery than the Q1 T1 type of infarction. To further confuse the picture there may be multiple infarctions involving, sometimes, both coronary arteries.

PROGNOSIS

The prognosis depends much on the size of the infarcted region and the adequacy of the blood supply surrounding the infarct.

If the occlusion develops slowly, there will be a much better chance that collateral circulation will be established than if the condition occurs suddenly. The weak and the aged will have less chance than will the young strong individual. The basal infarction gives a decidedly more hopeful outlook for the patient's immediate survival and for his final

recovery than the apical infarction. In any case of coronary occlusion with infarction, the prognosis is notoriously uncertain and a guarded prognosis should always be given.

TREATMENT

If coronary occlusion is present or suspected, put the patient at complete rest immediately. He should not be moved from the place where the occlusion has occurred if it is possible to care for him there. Get the best nursing facilities available. Strain of any kind should be interdicted both physical and psychic. The patient should be kept warn, and at all times, the body heat should be conserved, especially during the period of shock. For the first two weeks he should not be permitted to feed himself, but should be fed by an attendant. He should not be permitted to sit up for any reason, not even to facilitate the making of heart tracings. Exclude all visitors and business consultants.

From the fifth to the tenth day, there is another danger period for the patient, who has survived his initial attack. This second danger period is due to softening of the infarct. Strain at this time may cause an aneurysm of the infarcted area or a rupture through the infarct into the pericardial sac.

The diet should consist of liquids and semisolids. As wide a variety of foods as possible should be given, especially foods that provide an ample vitamin intake. The diet should be low in calories, and these calories obtained chiefly through the carbohydrates. In the event that proper bowel elimination cannot be obtained by diet, the patient will need some mild cathartic, such as, mineral oil or milk of magnesia. Retention oil enemas are often well tolerated and are very effective. Harsh purging is bad therapy at any stage of infarction, but is especially undesirable during the early period of shock.

For the severe pain attending the occlusion with infarction, morphine or other derivatives of opium will give relief. It is perhaps best not to give heroic doses of morphine, but to administer one-fourth gr. parenterally every half hour until relief is obtained. When the patient does not have pain he should not have morphine, because this drug often causes nausea and vomiting and sometimes urinary retention. Patients with coronary occlusion are very tolerant to morphine while in pain, and when needed, morphine is indeed a life-saving measure. However, the pain of a coronary occlusion is likely to start slowly and work up to a crescendo. After a few hours the pain is likely to cease suddenly. When the pain is gone, they lose their tolerance to morphine. Hence, if too much of the drug has been given, you may get morphine poisoning following the cessation of pain.

For coronary insufficiency with angina pectoris, the nitrites are the drugs of choice. The nitrites do not raise the threshold of pain as does morphine, but act by dilating all peripheral arteries including the coronaries, thus abolishing the mechanism (ischemia of the heart muscle) causing the pain. Glyceryl trinitrate, also called glonoin and trinitrin, can be taken by mouth and safely repeated at five or ten minute intervals, until relief has been obtained. Throbbing headache and sudden flushing of the face will quickly ensue and the patient should be advised of these disagreeable symptoms.

For dyspnea with cyanosis, oxygen is excellent and is best given in the oxygen tent. Oxygen should not be used as a routine, but used only when the above named indications are present.

SEDATIVES

Sedatives are valuable, particularly the barbiturates, to quiet the patient and minimize his restlessness. By reducing nervous excitability, the barbiturates are effective in lessening the number and severity of the attacks of effort angina. These drugs help to control the fear and anxiety of acute coronary occlusion as well as the restlessness which needlessly expends physical energy. They also reduce the susceptibility of the heart to the various ectopic rhythms. Care should be taken lest too much of the barbiturates be ad-

ministered. Sometimes, if the barbiturates are given in too large a dosage, they may cause a form of motor restlessness and thus defeat the purpose for which they were given.

The xanthine group of drugs, theobromine and particularly, aminophyllin, are very highly regarded by our profession and are extensively used in the treatment of both angina pectoris and coronary occlusion. They are vasodilators, it is true, but it is also true that their value has probably been much overrated.

Hypertonic glucose solution, 10 to 15 per cent, given in amounts of 200 to 300 cc., is sometimes indicated and gives excellent results. This solution should be given slowly over a period of one to one and one-half hours.

Whether or not digitalis should be used in the treatment of coronary occlusion has occasioned many arguments among cardiologists. Digitalis should never be given as a routine measure since it slows the heart and increases the amplitude of the heart action, it might readily disturb the coronary bed and subject the necrotic portion of the heart to too much strain. Digitalis is given for two conditions; namely, first, cardiac failure; and second, certain disturbances of rhythm, with or without cardiac failure, auricular fibrillation, auricular flutter and possibly paroxysmal tachycardia. A patient manifesting one or more of these disorders, should have digitalis regardless of what accompanying conditions are present. There are no contraindications to digitalis in which the foregoing indications for its use are present. If needed for specific reasons in coronary occlusion, digitalis will exert its customary effect on the heart.

The use of quinidine sulphate in the treatment of auricular flutter, auricular fibrillation, and ventricular tachycardia, is justified if these conditions are associated with coronary occlusion, the same as when associated with any other cardiac condition.

DIURETICS

One cc. of salyrgan, or mercupurin, given intravenously along with good sized doses of ammonium or potassium nitrate, will reduce the edema from heart failure whether this edema is due to coronary occlusion or any other cardiac disease.

The treatment of coronary occlusion is entirely symptomatic. No doubt too many drugs are used and too much of each kind given. The patient should be kept in bed for at least six to eight weeks. By that time the infarct should be healed, but probably will be healed by scar tissue. If after this long rest in bed, conditions appear favorable, he may be permitted to sit up in a chair, for short but increasing periods daily. He should be lifted from his bed to the chair and should not be permitted to walk for the first ten days after sitting up. It will require at least six months to one year for the infarcted region to heal completely. And so the patient should not attempt to work or look after business until completely cured. The physician should always temper judgment with caution when he is considering increased activities for his patient.

In case of coronary thrombosis, the patient's chance of recovery, with the least possible handicap and with his physical adjustment necessary to carry on in his limited capacity, lies not so much in the efficacy of drugs, but rather in the patient care, the sound advice, and the firm guidance of a wise attending physician.

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A PRELIMINARY SURVEY ON THE RELATION OF PHYSICAL DEFECTS TO SCHOLASTIC STANDING

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THE purpose of this survey was to determine if possible the relation of diseases and defects to scholastic standing. We wished to know whether or not physical handicaps were a cause of mental retardation, and if so which of these were most needful of correction. It was thought best to begin by taking as large a group as possible consisting of 360 unselected students near the same age from various primary schools. The grades were obtained for the previous semester and classed accordingly as excellent, good, fair, and poor. A separate list was compiled demonstrating the defects of each child. These were plotted one against the other, according to percentages. The reason for using large numbers of students, as contrasted to individual cases, was: first, to find the defect which could be considered the greatest offender; second, the type of students that would be most in need of correction of any defect. In studying an individual pupil of any standing below excellent, we might recommend the correction of some condition, such as infected tonsils, but in order to be reasonably certain that this would be of benefit we should have compared a large number of cases in order to know that enlarged or infected tonsils are a definite handicap, especially since foci of infection are no longer regarded with horror. In other words, will correction of this most obviously deficient part in a poor student bring his grades to a point where they approximate those of a good or excellent student? Or there may be a round about approach, such as the discovery that among 56 students, those with infected tonsils lost an average of seven and one-fourth days; those with enlarged tonsils four and five-eighths days; and with normal tonsils four and one-tenth days for the semester. Conversely with the same number of students in plotting grades the excellent students were absent an average of two and one-half days while the poor students lost twelve and one-tenth days. This finding is again borne out by contrasting the number of children with infected tonsils having excellent grades, which is 10.5 per cent, with those of poor standing, 31.5 per cent. Among 159 students having normal tonsils, 18.2 per cent could be classed as excellent, and 16.3 per cent as poor. Granting that the law of averages is applicable here, and that some pupils

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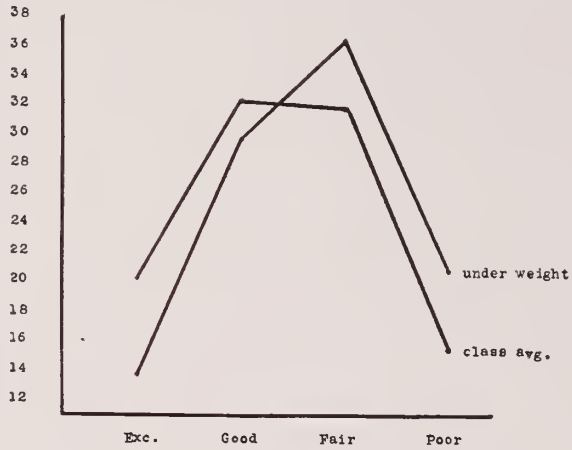
are able to overcome almost any handicap, we find that infected tonsils can, for our purposes, be considered detrimental, if for no other reason than loss of time from school. Conversely in conducting school health clinics we notice time and again, though not in-



Relation of malnutrition (six pounds or more under average weight) to class standing.

variably, that the child within the next year after tonsillectomy, gains in weight and general physical well being.

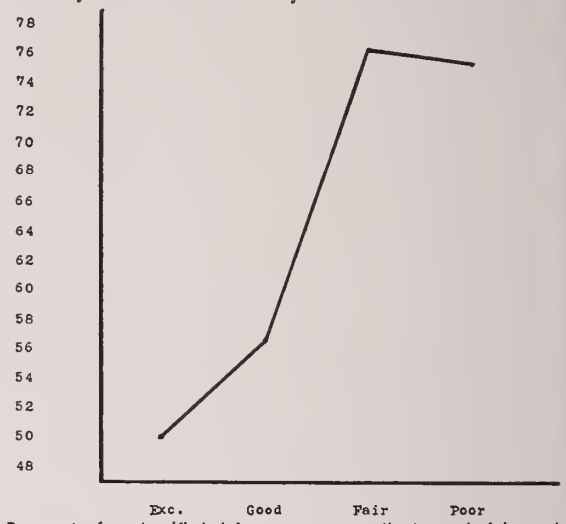
One group of 230 students contained 152 with unclassified defects, minor or major, with

Per cent of eye defects among excellent, good, fair, and poor students (231 pupils).

Excellent	9 defective of 37
Good	24 defective of 74
Fair	24 defective of 76
Poor	18 defective of 44

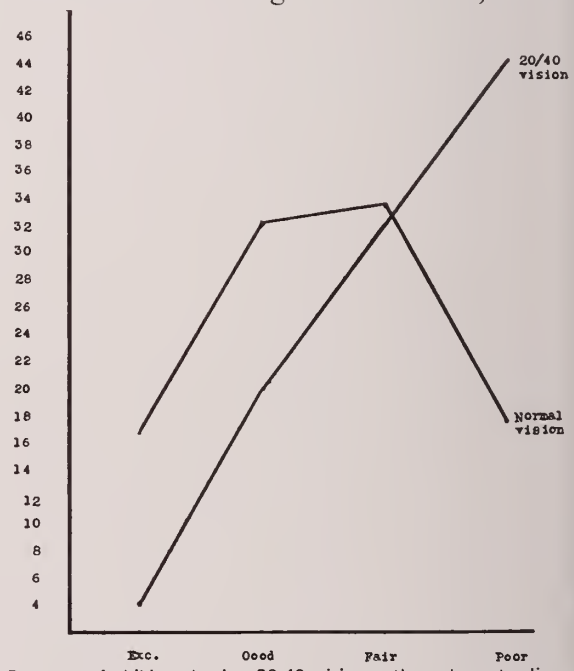
an increase of 25.5 per cent among the poor students over those of excellent standing.

Serious eye defects are apparently the greatest scholastic handicap a student can have, since only four per cent having a visual acuity of 20/40 or worse were excellent students, while 44 per cent were poor. With normal vision 16.8 per cent were doing excellent work and 17.6 per cent poor, so that we may conclude that eye defects of 20/40 or



Per cent of unclassified defects among excellent, good, fair, and poor students (230 pupils).

more present the most serious problem in relation to class standing. Furthermore, vision



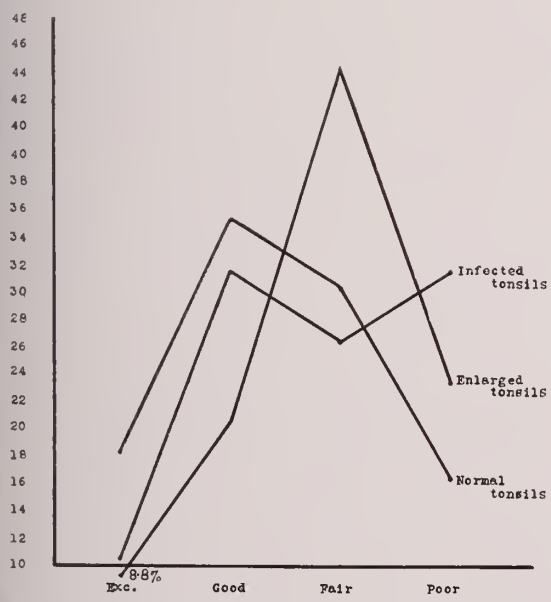
Per cent of children having 20-40 vision with a class standing of excellent, good, fair, or poor compared with students with normal vision.

20-40 Vision		Normal Vision	
Excellent	1 in 25— 4%	Excellent	26 in 153—16.9%
Good	5 in 25—20%	Good	49 in 153—32.0%
Fair	8 in 25—32%	Fair	51 in 153—33.3%
Poor	11 in 25—44%	Poor	27 in 153—17.6%

of 20/30 in one or both eyes cannot be considered worthy of emphasis, since that curve approximates that of children with normal

vision. That faulty vision is a detriment can further be shown by a survey of 231 unselected students which showed that 24.5 per cent of the excellent students had eye defects as contrasted to 40 per cent of those doing unsatisfactory school work. Testing with the Betts eye view apparatus revealed a variation of 50 to 75 per cent of failures to have defective vision.

Malnutrition, that is, a weight of six pounds or more below the accepted normal for the height and age of that particular child, cannot be regarded as serious, except that underlying physical or environmental conditions should be corrected. The curve for these children is somewhat less satisfactory than the class average.



Per cent of students with infected, enlarged, or normal tonsils having a class standing of excellent, good, fair, or poor. 258 students.

Infected Tonsils		Enlarged Tonsils	
Excellent . 4 in 38	10.5%	Excellent . 3 in 34	8.8%
Good ....12 in 38	31.5%	Good .... 7 in 34	20.5%
Fair .....10 in 38	26.3%	Fair .....15 in 34	44.4%
Poor ....12 in 38	31.5%	Poor .... 8 in 34	23.4%

Normal Tonsils

Excellent ....29 in 159	18.2%
Good .....56 in 159	35.2%
Fair .....48 in 159	30.1%
Poor .....26 in 159	16.3%

The relation of deafness to class standing could not be definitely studied due to only 16 cases having been discovered, but only a few of these are known to be doing unsatisfactory work.

Speech defects also represent such a small group that no conclusions could be reached.

In conclusion, this preliminary report is an attempt to demonstrate that physical defects are a definite handicap to students in primary schools and it is to be hoped that in the future, with a study of more cases and attempts to follow corrected cases for a sufficient length of time that our statistics may become more valuable.

ALLERGY TESTS

Many mysterious symptoms of children may be accounted for when the possibility of allergy is considered and the proper tests are made, H. A. Slesinger, M.D., Windber, Pa., points out in *Hygeia, The Health Magazine* for August.

While the most common manifestations of allergy in children are eczema, asthma, hay fever and hives, other symptoms are encountered, such as certain types of headaches, angioneurotic edema (swelling), abdominal pains and edema of the larynx.

Eczema in infants is usually caused by the presence of certain proteins in cow's milk which the child cannot tolerate. It is possible for an infant to be allergic to his own mother's milk, but it is usually unwise to wean such a baby, because he will probably be more allergic to cow's milk.

Many of these babies will recover completely and never have any more symptoms of allergy. Others remain allergic to milk and must be kept on a milk-free diet for many years. Still others become allergic to other substances and develop various types of manifestations.

Some of the many substances to which one may be allergic are foods of all types, inhalants such as dust, pollens, feathers and animal dander, or substances with which the victim comes into physical contact such as silk, wool or chemicals. Change in outer temperature may produce allergic symptoms. One may be allergic to just one substance or to many substances.

The most satisfactory method of dealing with the allergic child is to eliminate the offending agent from his diet or environment. However, it is often impossible to eliminate environmental factors, and desensitization must be attempted. This is accomplished usually by giving extracts of the offending substance in gradually increasing doses.

PYLORIC STENOSIS IN INFANCY*

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HYPERTROPHIC PYLORIC STENOSIS is no longer considered a medical curiosity and follows along a certain clear cut course in the majority of reported cases. Many more boys are affected than girls and more first born than later children. Most cases develop in breast fed infants, this being probably only an accidental occurrence, since at the early age of onset more infants are being breast fed. It is rare in negro infants. Griffith and Mitchell in their textbook, mention having seen only three cases in members of this race, in all of them pyloric spasm being apparently largely responsible for the symptoms.

In the typical cases the onset of symptoms appears from three to six weeks after birth. Vomiting is at first uncharacteristic and only occasional. Steadily it grows projectile in character and becomes more frequent. There is no evident nausea, while constipation is a striking feature. Loss of weight is usually rapid and may proceed to extreme emaciation.

Gastric peristaltic waves, visible through the thin abdominal wall, constitute a characteristic sign. A movable pyloric tumor may be felt in almost every case slightly to the right of the midline just below the liver.

Heidenhain and Gruber attribute certain gastric disturbances in adults to the occurrence of pyloric stenosis in infancy. Ackman related the instance of a man of seventy-two years who had digestive difficulties since infancy, and at whose necropsy pyloric stenosis was found; Crohn reports a somewhat similar case in a woman forty-five years of age.

I shall refer to the treatment only to say that in the majority of cases, it consists in getting the infant in satisfactory condition for operation.

*Read before the Staff Meeting, Chesapeake and Ohio Hospital, Huntington, West Virginia, June 15, 1939.

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Four case reports follow that are interesting in that each is atypical in some respect as to signs, symptoms, clinical course or outcome.

Case 1: A. C., a white male, age five weeks, was admitted to the hospital April 6, 1937. This baby has been entirely well until one week prior to admission when rather suddenly he began to vomit persistently and cried because of abdominal cramping. Medication prescribed by the family physician and removal from the breast, failed to alleviate these symptoms. Constipation was obstinate, making daily enemas necessary.

Upon examination the baby was very well developed and well nourished, although, of course, mildly toxic and dehydrated, with an acetone odor to his breath. Positive physical findings were limited to the abdomen which was moderately distended. A small mass was palpable in the right upper quadrant. Barium enema showed the colon to fill normally. Barium was also introduced into the stomach by gavage. Two and fourteen hours later very little emptying of the stomach was noted. In forty hours the greater portion of the barium was still present in the stomach. In the interim, the infant was given atropine before feedings, enemas, infusions, and glucose intravenously. The mass remained in the right upper quadrant.

The baby was operated upon April 8, 1937, two days after admission and a typical pyloric stenosis found. The postoperative course was uneventful and the patient was discharged April 17, 1937, 11 days after admission.

I believe this case is atypical because of the extreme suddenness of onset, and almost complete pyloric obstruction from the appearance of the first symptom.

Case 2: M. R., a colored male, age three months, was admitted to the hospital June 21, 1938, with the following history. The baby had not done well since birth. He was a full term infant, of normal delivery and weighed seven pounds at birth. He was breast fed for six weeks and then placed on numerous artificial feedings without progressing satisfactorily. He vomited about every third feeding and was always constipated.

Upon admission to the hospital the baby was emaciated, moderately toxic and weighed seven pounds, five ounces; only five ounces over the birth weight. In addition to the above findings a definite pyloric tumor was palpable in the right upper quadrant of the abdomen.

The infant was given saline infusions, glucose intravenously and placed upon thickened lactic acid feedings for four days. Atropine was given before each feeding.

Operation was performed June 25, 1938, and a typical pyloric stenosis found. The postoperative course was uneventful, with dismissal from the hospital July 3, 1938.

On July 30, 1938, the baby was progressing normally and weighed ten pounds, nine ounces. He has since continued to do well.

COLORED CHILD

There is nothing atypical about this case except the race of the patient, pyloric stenosis in a colored child being somewhat of a rarity.

Case 3: J. P., a white male, age six weeks, was admitted to the hospital April 15, 1938, with the following history: The baby had been sick since birth, vomiting after each feeding. Water also was vomited at times. Constipation had been persistent. There had been a weight loss of two pounds since birth.

Examination revealed a weak, emaciated, dehydrated white male infant with a temperature of 104. The chest was clear. Both ears were found to be abscessed and after myringotomy, drained profusely. Definite patterns were noted over the abdomen, although no tumor could be felt for certain in the region of the pylorus.

The baby was given infusions of normal saline, glucose intravenously, and the usual routine of thickened feedings preceded by atropine. Two days later the infant was much improved. The temperature was normal, vomiting infrequent and there had been a small weight gain.

On April 21, 1938, the baby still continued to improve but vomited occasionally. A barium meal was given and in three hours the stomach had emptied completely. Both ears had ceased to drain.

On April 26, 1938, the baby was again vomiting frequently and losing weight. One ear was reopened and drained well. There was a suggestion of a small mass palpable in the right upper quadrant of the abdomen at this time.

On May 2, 1938, the infant was again vomiting rather consistently in spite of the thickened feedings and an atropine dosage of 1/500 grain before each feeding. All physical signs of a pyloric obstruction were present with visible peristalsis and a suggestive pyloric tumor; however, the stomach again emptied in three hours after a barium meal.

For the next week an attempt was made to get the baby in better condition for operation. Numerous infusions, glucose intravenously and two transfusions of whole blood were given. On May 11, 1938, the baby was operated upon and a typical pyloric stenosis found. Postoperative course was uneventful. The baby was dismissed in good condition May 27, 1938, on a full formula and retaining all feedings.

On July 12, 1938, the baby was admitted in poor condition. He had been refusing his feedings, vomiting occasionally, both ears were draining and he was coughing. X-ray revealed a bronchopneumonia. The patient's condition grew steadily worse in spite of supportive measures and he expired July 23, 1938.

DIAGNOSIS CONFUSED

In this case the proper diagnosis of a pyloric stenosis was delayed and the picture somewhat confused for several reasons. A purulent otitis media was present, which when drained produced such a marked improvement in the patient, including a cessation of vomiting for a while, that an organic obstruction became doubtful. The barium meals which emptied from the stomach in a normal period of time also pointed against a true pyloric stenosis. Looking back, it was noted that the infant seldom vomited at ten a. m., and this was about the time that the barium was given on two occasions. Then, too, it is not improbable that the small amount of barium given to an infant of this size, could easily empty from the stomach in three hours, although some obstruction is present, as will be illustrated in the following case:

Case 4: V. H., a white male, age six weeks, was admitted to the hospital November 23, 1938, with the following history: At the age of three weeks the baby, who was breast fed, began to vomit its feedings, lose weight and become constipated.

Treatment was given by the family physician for a pyloric stenosis, atropine solution, one drop of 1/1000 solution being given before each feeding. The child grew steadily worse and was then brought to the hospital.

Upon examination the baby was found to be moderately toxic and dehydrated and exhibited signs of a recent weight loss. The general examination was otherwise negative, except for a small tumor mass palpable in the right upper quadrant of the abdomen.

The infant was kept on the breast feeding, given infusions of normal saline and glucose intravenously. Ten drops of atropine 1/10,000 were given before each feeding.

In two days time, the baby was much improved. The vomiting had practically ceased, the baby was eating well and beginning to have normal stools. Because of the marked improvement, operation was deferred and a barium meal introduced into the stomach. Under the fluoroscope the barium could be seen leaving the stomach; however, there was a definite constriction of the pylorus, the barium being squirted through in a very thin stream. In three hours time the stomach was emptied. The baby continued to improve under medical treatment and was dismissed December 8, 1938. On discharge the tumor mass was still palpable in the region of the pylorus. One month later the baby was checked and had continued to progress normally, although still on atropine.

I believe there is still a possibility that this patient may require an operation later, or may be one of those unusual cases that continues into adult life in spite of a stenosis of the pylorus.

Two points are worth mentioning in connection with this report. First of all, atropine should always be used in fresh solution and the dosage can be much better controlled by giving 10 drops of a 1/10,000 solution rather than one drop of a 1/1000. Secondly, the fact that the stomach empties in three hours does not rule out an obstruction at the pylorus as we could observe a very definite constriction at the pylorus in this last patient as the barium emptied from the stomach.

TRAINING FOR EMOTIONAL HEALTH*

By EDWARD F. REASER, M. D.
Huntington, West Virginia

You have asked me to discuss the question, "What should we be doing for the emotional health of our children?" You have offered me a challenge to produce a constructive program that will help you in your work as nurses and as mothers and teachers. You have indicated a deep interest in a prophylactic approach to the problems of education and a hygienic attitude in a realm that in the past has not been looked upon as one to be dominated by medical authority.

To attempt to outline a definite and complete program would be like trying to tell you how to prevent physical illness. Physicians have learned that certain prophylactic measures will abort the inroads of smallpox and that others will build up immune bodies sufficient to protect the human organism against the typhoid bacillus, the diphtheria germ, and the virus of rabies. But no authority in the world today can tell you how to prevent the common cold or explain to you

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the cause of headache. These are perhaps among the oldest maladies of men and yet they remain beyond our control, except in a palliative manner. In other words we do not know enough to set up a system of prophylaxis or a set or rules of hygiene that will enable us to succeed in keeping well.

EMOTIONAL HEALTH NECESSARY

Your interest in emotional health is proper because emotional health is necessary for completeness of whole-function of the human integration. When I say whole-function I am referring to the modern conception of the human being. In former days they spoke of a body, a mind, and a soul. They could see the body, and, of course, they could see manifestations of the action of the mind. The soul they assumed to be a separable entity. I am offering you the suggestion that a human being is not a composite structure made up of parts that can be considered separately but that he is a biological integration that exists in physical form and functions in a way unique to himself alone. There are no two humans alike, just as there are no two stones alike, even if they have been worked upon by experts in stone working in an effort to produce two identical specimens. The molecular structure varies regardless of the gross form. The microscope reveals differences. No two objects or animals are ever alike. Finger prints are used to identify an individual in the face of the fact that there are millions of people living, working, striving, and mixing freely from one part of the globe to another. If we can identify a man from the farthest reaches of the inhabited portions of the world in which we live by means of his finger prints how can we expect to find any two persons whose minds work alike? My conception of a person is the one now generally accepted among modern psychologists and psychiatrists. It has been explained and emphasized by Dr. Meyer and his colleagues as the psychobiological conception of a human integration.

Man is made up of structures all of which are so intimately related that they function together. Without function the physical body is nothing more than a mass of chemical substances that can be reduced to other forms, solids, liquids, and gases. However, these chemical substances, constructed by natural processes into cells, tissues, organs, and organism, together with the functions that result from the relationship, compose an integration that lives, and thinks, and acts—an integration that, considered as a whole, is an individual of the human species of the animal world. In order to study such an individual we must of necessity depart from our true conception and think of certain parts or levels. It is as if we are looking at a many-sided solid body, one with many facets which we can distinguish. It is as if we are trying to get a composite view or conception of a great continent, with its many topographical variations, its numerous peoples with diversified industries, customs, and habits, its variety of flora and fauna, and its climatic phenomena. We can not see it as a whole. We must view it part by part.

CORRECT UNDERSTANDING

If we are to understand a human being we must, of necessity, know that we are studying an organism that functions, not part by part, but as a whole. If the appendix is inflammed and the seat of an infective process it will become changed in size, temperature, and color. But that is not all. There will be pain, and the pain will affect other structures within the body. Not only will other structures be affected but there will be mental responses in the form of anxiety, irritability, and discomfort generally. The temperature of the body may change. The muscles will react by a spasm. The stomach will be in sympathy and refuse to retain food in order that the intestinal tract will be subjected to no further insult. In other words, the human organism is entirely changed by the process. In cases of severe illness there may be mental manifestations in the form of delirium, showing us that we can not separate the functions of the various organs, and that we can not regard physical functions as apart from the mental functions of the individual. Our conception

must be that all function of the organism is the result of the interaction of the forces that activate and work together to produce a response, whether it be muscle spasm due to a fracture of the femur, nausea due to intoxication, or a temper tantrum. With this understanding we can readily see that there is no separation of the mental from the physical, and the psyche and the soma must be considered together and not separately. Physical structures are necessary components of the human organism. They participate in physiological functions which in turn are the manifestations of the living processes, the highest levels of which we call mental activity.

REACTIONS

In our efforts to designate for study certain mental reactions it becomes necessary for us to apply terms that in themselves imply a division of function which does not exist. The cognitive, conative, and emotive functions are so interrelated that they can not exist separately. No properly integrated individual possesses one such function without the others. The ability to know, to possess intelligence, to learn and to retain impressions, to think, and to reason, necessarily implies the ability to wish, to strive to attain fulfillment of the wishes, and the satisfaction of the appetites and desires. The consciousness of these abilities brings feelings of pleasure, worry, love, jealousy, and numerous other mental attitudes commonly spoken of as emotions. There is a conscious reaction of the individual to the various situations in which he finds himself. These conscious factors are either pleasant or unpleasant. If referred to, or attached to some object or person, they are called sentiments. Psychologists employ the general term, affect, to that group of functions including emotions, sentiments, and impulses—to all the conscious reactions falling in the domain of feeling and resulting from intellectual experiences.

The question of which emotions are inherited and which are acquired by learning has never been settled. Undoubtedly heredity brings to us a disposition to react to certain life situations in some definite manner. That which our remote ancestors learned by repeated experiences and found to be of vital importance for the preservation of the race has been handed down to us in the form of instincts. Instincts represent racial acquirement of modes of action and habits of adjustment that possess survival value. Coupled with instincts are emotions. Even a relatively simple situation will bring forth from the human infant an appropriate response. He knows the feelings of anger, pleasure, and love. He responds to simple stimuli, such as loss of support, stroking of the skin, restriction of the movements of his arms and legs, loud sounds, in a manner more or less uniform the world over. It makes no difference what the race, or the geographical location of the infant may be. If he is suddenly dropped, that is deprived of a sense of security by proper support, he will cry in anger. If he is restricted as to movement he will respond with a reaction of displeasure. He will smile if the skin is stroked, especially in one of the erogenous zones. These facts appear to indicate that certain emotional propensities exist as a result of heredity.

EMOTIONAL RESPONSES

On the other hand we know that emotional responses are dependent to a considerable degree upon training and conditioning. A child that has lived several weeks in a hospital ward, and has not had the opportunity to learn fear, is relatively free from that emotion. To such a child the sight of a dog, or animal of the zoo, does not suggest danger. Fear is one of the emotions that is acquired for the most part, although the ability to experience fear is innate. The most common fears expressed by children result from poor training or from unhealthy contacts. Superstitions are quite common and are passed on from one generation to the next by a process of teaching. The child hears the older persons discussing them and accepts them as established facts.

Emotional responses to situations are conditioned by teaching. The child's experiences

produce feelings of pleasure or pain. Those events which are associated with pleasurable feelings, and those associated with unpleasant and painful feelings, come to be remembered with corresponding emotions. Children do not have a tendency to repeat actions that do not bring pleasant feelings. They naturally seek satisfaction of their instinctive desires and repetition of pleasant experiences. The usual routine acts of the child may be made to convey to him feelings of pleasure and satisfaction by wise suggestion and guidance.

When one is confronted with a situation which is new and which is puzzling, there are emotional responses that spring unbidden to the scene. It may be a situation of danger which evokes the full response of the sympathetic nervous system and prepares the organism for an expenditure of energy either by fighting or by fleeing, as in the case of a cat that suddenly confronts a dog. The pupils dilate, the bristles become erect and the muscles tense, there is an added flow of adrenalin into the blood stream from the adrenal glands, and the chemistry of the blood sugar changes as the circulation of the blood is deviated into the vessels that will supply the muscles for the emergency. A feeling of fright is experienced, but not necessarily one of fear. Anger is a component of the complexity of emotion that accompanies such a situation. On the other hand the sex impulse may suddenly assert itself, and be accompanied by strong emotional surging. Any situation into which the individual is suddenly precipitated without previous preparation, and for which no action pattern has been formed by inherent tendency or past experience, will evoke a strong affective response.

FEAR OF THE DARK

Some children are afraid in the dark. This is usually, or perhaps always, because they have been conditioned to fear darkness. Many parents are afraid in the dark and the children merely copy them. The children, however, will exaggerate the fears. The mother may be afraid that some interloper has entered the dwelling in her absence and concealed himself for the purpose of robbing or otherwise doing harm. The child, when he learns of her fears, is justly impressed. He has a right to believe that his mother's judgment is good and that he must fear what she fears. If he sees her looking under the beds he has a right to expect that some unfriendly adult or other source of danger to himself is likely to be concealed there. If he hears his elders talking of ghosts, goblins, spirits, tokens, spooks, and haunts, he has a right to believe that these supposed inhabitants of the dreary world of superstition infest the darkened spaces and dominate the night. How could we expect the child in his immature judgment to be able to select the objects of actual danger and pass by the creatures of hallucination of which he hears so much?

RELIGIOUS TEACHING

On the other hand many children are taught fear in connection with religious teaching. Many high pressure evangelists preach of everlasting torment as punishment for sins which all men commit. The child sees or hears his parent violate the precepts laid down in sermons to which he has listened in good faith. He witnesses his parent commit the acts which that same parent has told him will result in attracting the wrath of Heaven upon him. His emotions are stirred. He is not mature enough to evaluate either the teachings or the violations. He ponders the possibilities and worries. A child's fears constitute for him a great source of unhappiness. The element of fear should never be employed in imparting religious precepts. The wise parent tries to guide the child in such a way as to cause him to build up an impelling sense of desire to do that which is right, and to get pleasure from having done what his judgment tells him is right. This requires time, effort and great patience. In the formation of good habits many experiences are required. The parent and teacher must give the child ample opportunity to practice and must aid him in attaining a sense of satisfaction and pleasure as a result of his experiences. These generalities, if kept in mind, can be translated

into more concrete suggestions to fit the particular situation by the wise planning parent.

Coercion is undesirable because it deprives the child of the opportunity of exercising his powers of judgment and produces mental and physiological reactions antagonistic to the purpose to be served. When a parent finds it necessary to resort to attack it is significant of his own weakness. The parent should devote time to thinking of the problems that face him in the control and guidance of his child just as he devotes time to the contemplation of his business ventures and his professional activities. Wise planning of his daily tasks of controlling and supervising the conduct of the child will make the parent's labor much more effective and contribute to his peace of mind. The teacher must plan her work hour by hour and must adjust her efforts to the individual personalities of her pupils. The parent and teacher who do their work well will have much less trouble in their relationships with the children than will the slipshod and careless ones.

GROWTH OF EMOTIONS

The emotional functions are subject to development and growth. The affective life of the individual changes from time to time, depending on intelligence, age, environmental factors, and experiences. The problems of guidance of the preschool child are different from those relating to the school child and the child of later years. This is a period for the development of the appetites and attitudes along with the emotions. The child must be taught to take proper food, and to refrain from that which is detrimental without expressing resentment and anger. This requires great patience on the part of the parent. The child is a good copyist and a great admirer. If he can be persuaded that the effect of a particular food will make him strong and athletic or help to build the physical qualities that he desires, he will soon learn to like it. If the parent is finicky with regard to diet the child will soon note the fact and act accordingly. It is the same situation as was noted above with reference to fears. A fearful parent can expect the children to develop fears and a parent who will eat only selected articles of food may expect that the child will insist upon his right of self-determination.

FIRST EMOTIONS

The emotions of anger and of love are the first to be noted in the infant. To these fear is added. There is an innate tendency in the infant devoted to the preservation of self. This tendency causes the child to nurse without teaching in order to provide food for the sustenance of the body. It also causes the earliest efforts on the part of the child to evade danger to himself. This is translated into the emotion of fear after the child has learned that there are agents in the environment that may do him harm. Most of the fear reaction is the product of teaching and is one of the more complex and composite emotions that develop with age. Jealousy is another innate quality. This is seen in the lower animals, especially the dog. It is a normal reaction in children between the ages of one year and five years. Jealousy is an attribute of the child that deserves and requires careful consideration and attention on the part of the parent. When ignored or deliberately fostered, and encouraged, it may become firmly implanted and lead to distress later. Jealousy is an affect that may produce great unhappiness for the possessor and for those near and dear to him. This emotion has caused many tragedies. On the other hand it is a desirable quality when properly sublimated. Productive competition and friendly rivalry, both of which are contributory to human advancement, are the outlets of this natural human affect when it has been proply guided and controlled.

The emotions are subject to voluntary control in a man or woman who has devoted effort to self-discipline. General Leonard Wood is a notable example of a man whose emotions were under self-control. In the face of discouragement and what was regarded by

himself and his friends as discrimination against him, he carried on in a highly acceptable manner. I am reminded of an incident that I once heard him relate. He was division commander in charge of a cantonment during the World War. His car was being driven along the road flying the flag of the division commander. A private soldier was standing talking to a young woman. The feeling of importance derived from his wearing a uniform was so strong that he did not wish to minimize it by saluting a superior if he could avoid it. He deliberately turned his back and pretended that he did not see the general's car. General Wood passed him and ordered the driver to stop. He sent his orderly back for the soldier and asked him for his reason for the breach of discipline. The soldier pretended that he had not seen the flag and did not recognize the car. General Wood said to him, "You were talking to your sweetheart and did not want her to see you salute. What you should have done was to say, 'There comes the division commander. Watch me make the old man salute.' Then I would have been sufficiently well disciplined to return your salute. Now go back but remember this incident. You should be thankful that I am not a second lieutenant." This incident illustrates his emphasis on the importance of discipline, and at the same time his understanding of human nature. It is said that he accepted the news of his defeat for the nomination for the Republican candidacy for president as if it were a matter of no significance whatever. At the time he was referred to in the press as the best disciplined man in America. He never permitted his emotions to transcend his judgment.

EMOTIONAL CONTROL

Only on rare occasions did Washington give way to his emotions. He became noted among the officers and soldiers of the Continental Army for his self-possession and stoicism. He had consciously developed this faculty of controlling and concealing his emotions through long and trying years of experience in dealing with the Indians of the western frontier and the various types of domestic and European soldiers with whom he had made contacts. His ability to maintain an even temperament and to conceal the emotions that he must have felt on many occasions served him well.

JACKSON'S SELF CONTROL

Stonewall Jackson presented another notable example of stern self control. As a young man in Lewis County, West Virginia, he secured a meager common school education. After he had served as a local peace officer in that rural community he sought aid in securing appointment to West Point where he found great difficulties facing him. He was ill prepared for the tasks that confronted him in his scholastic career in that distinguished institution. He mastered them and graduated with honors. He had learned to depend upon himself. He had learned discipline for himself and the value of maintaining discipline among his men. As a leader he commanded respect from all ranks. He did not display his feelings except to present at all times a deep religious atmosphere. He gave public thanks to God for victory. He never called a council of war and never revealed his plans or misgivings. An incident reveals his ability to impress others with his importance and shows that he could act a part effectively. He was riding with his staff on a reconnoitering tour and was separated from his army by a bridge across an intervening river. When he neared the bridge he saw a cannon mounted on the approach in the possession of the enemy. Although he was in uniform, and should have been recognized as a Confederate general, he rode forward, and, pretending anger, demanded an explanation, stating that he had ordered the gun mounted on the other end of the bridge. When it was dismounted he dashed across the bridge to safety before the astonished Federals recognized him. He feigned anger well enough to confuse and frighten his enemies. At the time he must have been under a strong emotional urge. He subordinated his emotions to his intellect and made use of his faculties to pro-

tect himself and his comrades in a very difficult situation. Such examples convince us that the emotive faculties may be concealed and controlled, pretended and acted, and utilized under the direction and domination of the intellectual forces in the stream of consciousness.

We have all seen professional actors feigning various emotions. The ability to act depends upon the natural or acquired power of appearing to be laboring under strong emotional stress. Fear, anxiety, apprehension, distrust, dislike, hatred, jealousy, pain, torture may easily give place to happiness, comfort, contentment, and love, as we watch the skilful efforts of trained men and women who play the various parts. On the other hand it is true that an individual may call forth an emotional response by wilfully putting himself in the anatomical and physiological state appropriate to that emotion. You can make yourself feel angry. You can even arouse fear by bringing to the stream of consciousness memories of previous harrowing experiences. You can work up enthusiasm for a task by finding in it, or associated with it, a source of satisfaction, or a means of exaltation of your sense of importance. You can intellectualize your emotions and dominate them. It is only in the maladjusted individual that the affects assume a disproportionate degree of influence on the cognitive activities.

TEMPER FITS

Temper fits are exhibitions of immaturity. The well integrated person carries a sense of security and feels sure of himself in the ordinary life situations. In a very unusual situation he may lose this sense of security, but under such circumstances he ceases to be well adjusted. If he is not well integrated, and is deficient in his sense of security, he will readily give way to artificial defenses, such as anger and wrath. When there is a fear of defeat, or of the thwarting of natural urges and desire, there will be a tendency to anger. The desired end to be attained by guidance and training is not complete suppression of the affects, but proper sublimation and utilization of the psychic energy bound up in them. The lack of emotional tone is pathologic and is as undesirable as lack of control.

INSTINCTS

Instincts are the residuals of past experiences of the race. They represent actions and urges that have been desirable and beneficial in the past history of the race. They are phylogenetic habits. They have survival value and they exert a great influence upon the development of the individual. Properly cultivated and exercised, they form useful means of conservation of energy and effort. The infant is born with these innate tendencies. They influence the early development of the child. They occupy the realm of the unconscious and do not enter into the stream of consciousness. They make up the beginning resources of the child and upon their recognition and wise utilization and manipulation by the parents and teachers depends to a considerable degree the integration and personality growth of the individual. Development of the race has produced instincts. Development of the individual gives rise to habits. Emotional habits are as real as habits of posture and action. They are much more significant in determining the adaptive ability of the person. Conditioned reflexes are demonstrable in the physiological and psychological laboratory. Postural and physiological reactions are brought about in animals at will by controlled stimuli. Conditioned reflexes are highly specialized habits. The emotional habits of the individual are closely akin to them and are dependent upon the same phenomena. The failure to form emotional habits of the right qualitative and quantitative pattern leaves the individual in a state of immaturity or of maladjustment. Habit formation always occurs. It is the problem of the parent and the teacher to train the child in the formation of emotional habits that will enable him in later life to meet reality with decision and appropriate action.

Faulty emotional habits in childhood usually manifest themselves in the somatic field by

complaints of one kind or another. Every parent has seen examples of such physical disturbances. One of the worst things that a parent can do is to magnify the nervous symptoms of a child and speak of them in his presence. There are very few mothers who do not, in their own opinions, have nervous children. One would think that it is a form of distinction to be mother to a nervous child. They talk of the children's nervousness as they would of their major operations. On the first day of school about a third of the mothers of the beginners go to school with the little ones, and visit the primary teacher, to impress upon her that their children are nervous, and that she must give special consideration to each of them. When I was principal of a school I often wondered if there ever was a child whose mother regarded him as normal and free from nervous tendencies. The mothers would accompany the children and would insist upon talking to the teacher in their presence. The only purpose served by a mother who talks of her child's nervousness in the presence of the child is to confirm in that child's mind the idea that he must receive different treatment from that accorded to others and that he is an exception to the general order. Fixations are produced that may tend to mar the normal progress of the child.

HOLDING THE BREATH

At home many mothers become alarmed at the breath-holding of a stubborn and spoiled youngster. No human being ever yet has been able to hold his breath long enough to do him any physical harm. Such spells should be discouraged by ignoring them. Children who do not like to go to school will find many ways of avoiding it. Some malinger, while others develop actual symptoms of headaches, nausea and vomiting, pallor, syncope, and diarrhea. Many children will lose their appetites when they are worried over grades, promotions, or punishment. Recently I had occasion to examine a child who had been stealing money over a period of time. During the time he had been under the strain of worrying about being found out he did poorly in school and his appetite suffered. But once he was caught, and had the chance to make a clean confession to his parents, his mind was relieved to the point of sudden and marked improvement in his work. He had been under a severe nervous tension in contemplation of the consequences of his act. This child was suffering from a marked hypertrophic tonsillitis. Examination of the stool disclosed that he was not digesting the food he ate. I trust that correction of his physical disorders and some simple psychotherapy will correct his nervousness.

CHILD'S FEELINGS

A parent or a teacher should appreciate the feeling of the child. Once I was appointed to a principalship of a school succeeding a man who had not been able to cause the pupils to like and respect him. He was noted for being cross and for seeking severe means of punishment for infractions of his rules. He sought to compel obedience. He led the pupils to fear him. He was disliked by them. There were a number of boys in the fifth and sixth grades who were somewhat retarded and who played truant. Others who were bright and active were repressed and fearful. I had ample opportunity to watch those children and their parents change from an attitude of unfriendliness toward the school to one of friendly cooperation. The boys no longer feared to talk of their troubles and the parents commented on the changes in the attitude of their children. The only difference at school was a disposition to give approbation for tasks well performed and to invite cooperation by giving opportunities for the pupils to express themselves in useful and healthful activities. When a child is in a situation which impresses him as being without comfort or pleasure he will react unfavorably. He must have an assurance that those in authority respect him and trust him. The sense of importance is, perhaps, the most dominant factor in determining an individual's attitude towards any situation.

Early in life children learn to utilize cir-

cumstances that place them at the center of attention. The "showing off" of children in the presence of visitors in the home is an example. It is a very common reaction of childhood. Most healthy children pass through a stage when they simply can not avoid drawing attention to themselves and such an event as the coming of visitors offers a suitable situation. The mother is greatly embarrassed by such antics on the part of the child, and usually uses very poor tactics in her effort to reform the culprit. But the child has accomplished his purpose, which is to attract attention to himself and to place himself on the center of the stage. It is a wise parent who can learn the proper approach to the child's sense of importance and who can devise means for the child to achieve his natural expression in an acceptable manner. It is usually the child whose mother has encouraged his histrionic efforts and placed him in the center of attraction in his early months that find it desirable to "show off." Or perhaps it is the father, or the grandparent, who has invited this display. If a child could be treated as carefully as a young colt is treated by the owners and trainers, and not treated as a plaything and toy and as a source of amusement and attention on the part of the parents, and grandparents, and the visitors, in his tender years, there would be less "showing off." Conceit, and the desire to be important, are the most significant characteristics of juvenile criminals. Sometimes it is illness that offers a weapon for the child. He finds that when he is ill he is the center of attention or he notes that some other member of the family draws attention during sickness. He then learns to utilize real or feigned illness to make himself important. The child will be determined to hold his position of importance and to attract attention to himself and he will not care what means he employs for this purpose.

ACTIVITIES FOR THE CHILD

The child must have attention. He can not be neglected. However, the type of activities to which he should be accustomed will help to solve the problem. He may like to tear his toys apart and try to rebuild them. That is significant of a creative tendency. Children are not destructive except as their destructive activities precede constructive purposes. A child disassembles a toy with the idea of reassembling it. From toys he goes normally to real tools. He may saw the handle off the axe so as to make it more in keeping with his idea of usefulness, but he does not do it to be willful or mean. He has never been told that he is not permitted to make things over to suit his needs. The best way to punish him for such an act is to require him to purchase a new handle from his savings. He should not be attacked for it. Corporal punishment for a child who is old enough to comprehend what is said to him is always of doubtful value.

ATHLETICS

From tools a child can be led to books, manual activities of varying character, competitions of a stimulating quality, and aesthetic considerations. Athletic games are of inestimable value in training children in emotional control. Baseball, football, and basketball, all afford an opportunity for the expression of the instincts and the acquiring of the finer discriminations that are called good sportsmanship. The game must be played according to prescribed rules. It is not worth while to win unless all the rules have been observed. The rivalry is not friendly at first. The children will take their games seriously but good coaching and proper training will soon prevail and they will all gain that sense of honor and good sportsmanship that is conducive to emotional control and mental health. Intramural school activities, such as debating clubs, literary, musical, and expression societies, class and school government organizations, are all valuable. Encourage friendly rivalry and contests. Discourage all ill feelings, even when you are in sympathy. It is only by wise precept and good example that you will be able to inculcate teachings upon which the child will be able to build his own ideals.

It is wise, as soon as the child has reached

an age at which he is capable of understanding, to explain to him the meaning and purpose of your directions, and help him gain an insight into the actual values of the situations to be confronted. You must always remember that he is a child and has the mind of a child. Too many parents and teachers make the mistake of thinking of the child as a little adult. The child mind is different from that of the adult and a wise parent and teacher will try to gain an understanding of the level of the young mind to which teaching must conform.

SENSE OF PROPORTION

Children are likely to form wrong opinions concerning the values of successful attempts in school life and in play life. They will overemphasize the value of a victory and see defeat in anything less than complete annihilation of the obstacle or opponent. They need to be taught a sense of proportion. They need to be made to realize that real achievement occurs with effort even if the final result is less than that hoped for. They need to be taught self-confidence and to learn to weigh results. They should not be confused by too many rules or forced into action by fear of punishment. Punishment should come only as a result of willful disobedience to a well understood command, or as a natural consequence to some action which could have been avoided by deliberation or effort. Punishment should never be employed by an angry parent or teacher. If the adult is not sufficiently well disciplined and self-controlled to avoid the emotion of anger he certainly will do more harm than good when he tries to force the child to conform to his standards. Children have a keen sense of justice and if injustice is ever done to a child it should be adequately atoned. Unless it is, the child will never regain full confidence in the person who has made him a victim. A fixation will occur which will deviate his affection toward that individual even though he apparently forgets the incident.

Over-regulation and too strict discipline will produce the opposite effect from that intended. I have seen a number of persons who had been reared in strict surroundings, who, when opportunity afforded, went to the other extreme. If space permitted I could give you case reports to illustrate the fact that too strict discipline is almost as bad as no discipline. The reaction of the youth depends upon his inherited personality traits. Some run away from it. Others stay and take it and deceive the parents as to their actions. Others whine and malinger and seek refuge in illness while others openly rebel and become problem children. Many of them grow up to be querulous, irritable, and disliked by associates.

HUMAN UNDERSTANDING

Books could be written upon the topic of the value of being able to appreciate other people's feelings and views. Every school should give a course in human understanding. The greatest trouble with us as parents and as teachers is that we have never been taught properly. We can not seem to realize our lack of perfection. We have too many faults. If we could stop and study our own problems we would be able to understand better the troubles with the children. We have had poor hereditary tendencies along with the many valuable and elevating components. We have been subjected to a variety of environment factors, many of which we would not even be willing to discuss. If we could compensate for all these unfavorable attributes we might make good parents and teachers. We can always try to do so. Those who do try to exercise only the best faculties in their dealings with children nearly always succeed in making the children love them and follow their leadership.

If you will try to inculcate a sense of honor and responsibility, feeling for the rights of others, ideals, and desires to strive for improvement, ambitions and hopes, and a willingness to work, you can not be far off the proper path of education for emotional health.

The bovine type of tubercle bacillus causes 9.6 per cent of extrapulmonary tuberculosis in Canadian children under 14 years of age.

PNEUMOCOCCUS MENINGITIS—SULFAPYRIDINE THERAPY RECOVERY

(A Case Report)

By P. A. HALEY, II, M. D.
Charleston, West Virginia

THIS is the report of a case of pneumococcus meningitis which was treated successfully with sulfapyridine in large dosage and repeated spinal drainage.

L. M., Jr., age 22 months, was well until April 16, 1939, when he had an intestinal upset accompanied by a rather marked febrile reaction. He was unable to retain his customary diet and was somewhat distended. When seen April 17, he had a rectal temperature of 102.6 and was treated for an upper respiratory infection with gastroenteritis.

He was seen again April 20 early in the afternoon when the family stated that he seemed very ill, listless and unwilling to be handled or fed. While his temperature was being taken, he began having a violent convulsion, the onset of which began with extreme opisthotonos, with the right hand clenched and spastically held at his side. The left hand was open wide and held above his head. The legs were in full extension, the right facial muscles twitched, and the eyes rolled in utter confusion. The knee jerks were moderately active but the Babinski, Brudzinski and Kernig reflexes were all strongly positive, and the neck was rigid.

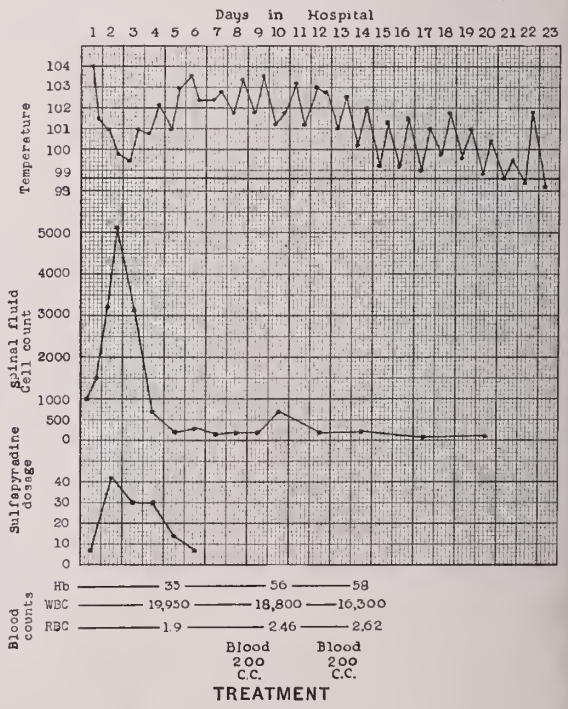
He was immediately hospitalized, and at 5:30 p. m. the spinal fluid was found to be under increased tension, was cloudy, and contained 1,008 cells. As the laboratory reported a gram positive encapsulated diplococcus and labeled it a pneumococcus of unknown type, sulfapyridine therapy was instituted using adult dosage.

The temperature dropped rapidly to 99.6 in a similar decline to that found in the successful treatment of pneumonia with sulfapyridine. However, the cell count was at a peak at this time and the drug was not discontinued until 84 hours after admission to the hospital, at which time the temperature was rising again, although the cell count had dropped to 300.

On the fifth day following the onset of the meningitis the spinal fluid was clear and remained so thereafter. On the seventh day he was alert enough to play with toys, and all abnormal neurological signs had disappeared. From this point on he improved steadily, the febrile reaction and the anemia apparently causing very little disability. Much difficulty was encountered in obtaining proper matched donors but he was given transfusions of 200 cc. each on the tenth and thirteenth days of the disease. It is interesting to note that he was able to take fluids freely from the morning of the second day. A liberal diet was instituted after five days and from this point the patient steadily improved to ultimate recovery. Since his discharge from the hospital he has been frequently observed and has steadily gained in weight and activity.

THE AUTHOR

Dr. Haley, graduate University of Virginia, 1931; interneship and residency, Church Home and Infirmary, Baltimore; St. Francis Hospital, Charleston; General Practice.



1. Sulfapyridine: With a decidedly unfavorable prognosis, large doses of the drug seemed justified and seven and one-half grains were given every four hours. As shown on the accompanying chart he received 7½ gr., 42 gr., 30 gr., 15 gr. and 7½ gr., on successive days. Toxic manifestations

(anemia and fever) became apparent and as clinical improvement became definitely established the drug was discontinued.

2. Spinal Drainage: The spinal canal was completely drained twice the first and second days, once daily until the tenth day and every two or three days thereafter. A total of 17 spinal punctures was performed. The fluid became clear on the fifth day and remained so thereafter.

3. Blood Transfusions: Two transfusions of whole citrated blood were given to assist in rebuilding the erythrocyte count.

TOXIC MANIFESTATIONS

Febrile reaction began 46 hours after therapy was initiated. This reached 103.6 degrees and continued for 20 days.

Vomiting after taking several doses of the drug happened early in the course of the therapy, but was not severe and did not demand discontinuance of the drug.

Rapid destruction of the hemoglobin and red blood cells with no effect on the leucocytes was apparent on the fifth day of disease (three days after onset of febrile reaction.)

SUMMARY

A case of pneumococcus meningitis is reported with recovery following treatment with sulfapyridine and repeated spinal drainage.

It is interesting to note that in 36 hours the temperature was normal (99.6R) but at this time the spinal fluid cell count was 5050 —the highest count obtained. As the temperature began to rise (apparently a toxic reaction to sulfapyridine) the cell count declined rapidly.

Vomiting, fever and rapid destruction of the erythrocytes were the toxic manifestations noted with no associated agranulocytosis.

The pneumococcus could not be demonstrated after 18 hours in the spinal fluid because of the apparent dissolution of the capsule by the drug.

Moderately large doses of sulfapyridine and repeated spinal drainage evidently are worth trial in this very fatal form of pneumococcus infection.

PNEUMOCOCCAL MENINGITIS TREATED WITH SULFAPYRIDINE AND SPECIFIC SERUM*

(Case Report)

By I. D. COLE, M. D., F. A. C. S. and E. F. HURTEAU, M. D.
Clarksburg, West Virginia

Case number 2535-T, patient aged eight years, was admitted to St. Mary's Hospital, Clarksburg, West Virginia, on May 11, 1939. Died May 21, 1939.

Present Illness: The onset of the right otalgia was evident at least two weeks before the patient was admitted to the hospital. The pain gradually increased in intensity. The week preceding our observation of the patient there was some tinnitus, vertigo and moderate left otalgia. Otorrhea was not evident.

Forty-eight hours before admission to the hospital, the patient began to complain of diffuse headache, most marked in the occipital and frontal regions. During the twenty-four hours preceding admission, the patient vomited several times and a progressive rigidity of the neck and lower extremities was noted. There was a moderate hyperesthesia about the thighs.

Past History: Internal strabismus had been present since birth.

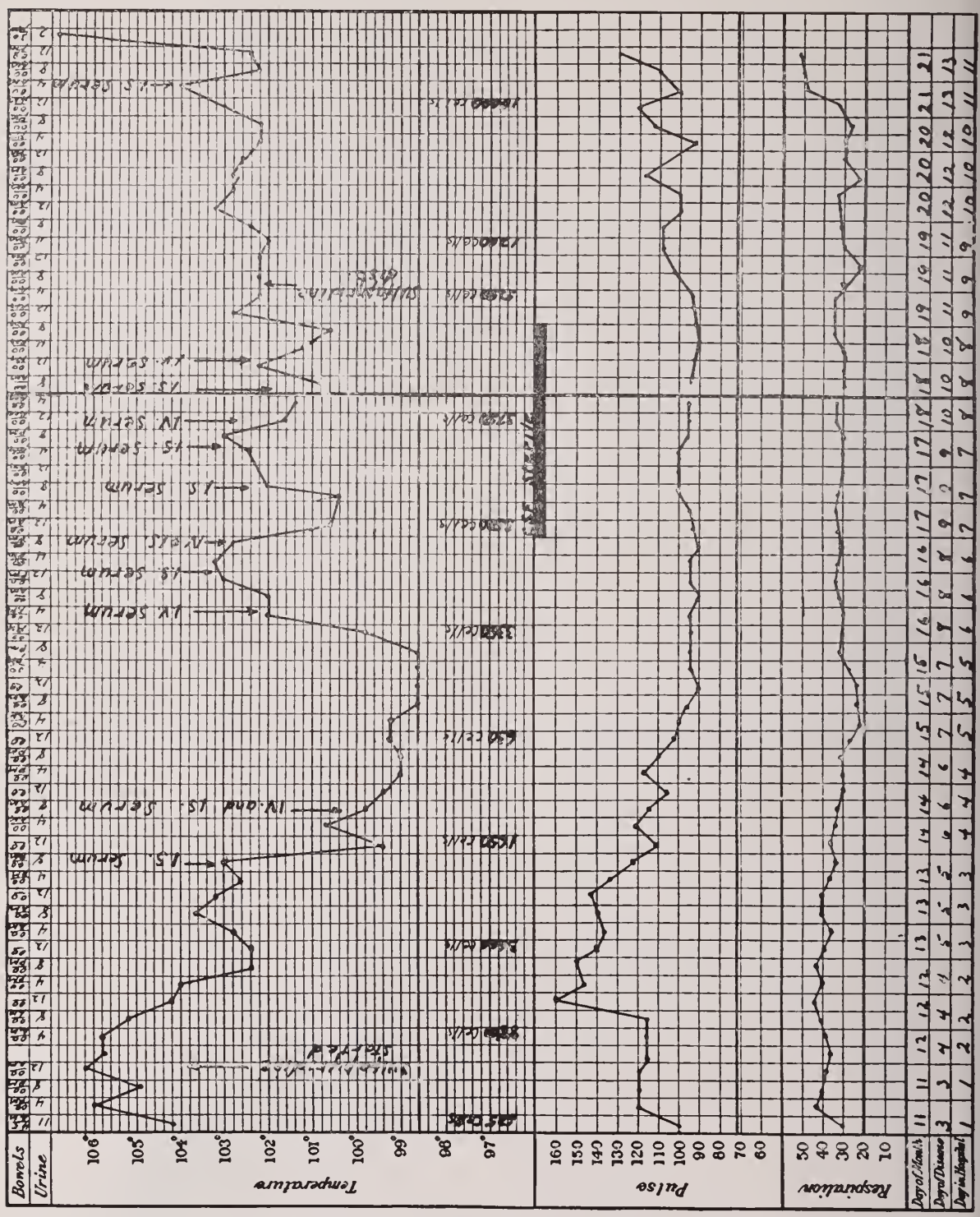
Family History: There was a simultaneous onset on April 27, 1939 of otalgia in

THE AUTHORS

Dr. Irving D. Cole, Clarksburg; graduate Maryland Medical College; interned Baltimore E. E. N. T. Hospital; postgraduate work in New York, Chicago, Vienna, New Orleans; Fellow, American College of Surgeons.

Dr. Everett F. Hurteau, Clarksburg; graduate State University of Iowa College of Medicine, 1937; interned Baltimore City Hospitals.

**Editor's Note: Through error the foregoing case report was published last month without charts or illustrations. The complete report with charts and photos is herewith reproduced.



Showing temperature, CSF cell count, and bacteriology response to Type III antipneumococcic serum in 20,000 unit doses given intraspinally (IS) and intravenously (IV). Sulfapyridine was given in seven to ten gr. doses at four hour interval.

two siblings followed by a spontaneous drainage and an uneventful recovery.

Physical Examination: The patient was a well developed, emaciated, eight year old white male. He was restless, resistive and slightly irrational. There was a marked internal strabismus. Both pupils were dilated but equal and reacted to light and accommodation. Cervical rigidity was marked. Legs and thighs were flexed but no opisthotonos was present. Kernig's and Brudzinski's signs were positive. The deep reflexes were hypoactive throughout and there was a marked hyperesthesia over both lower extremities. There were no motor irritative or paralytic findings and no petechiæ. The right ear drum was bulging but there was no evidence of mastoid tenderness.

Laboratory Findings: Lumbar puncture revealed a slight increase of pressure and a normal Quackenstedt response. The cerebrospinal fluid was moderately cloudy. The protein was increased and an absence of sugar was noted. The differential count was 75 per cent polymorphonuclears and 25 per cent lymphocytes. Smears, cultures and typing proved that Type III pneumococcus was present.

There was found a blood leukocytosis of 38,700, with 98 per cent polymorphonuclears. The hemoglobin was 78 per cent.

TREATMENT

Treatment: A right myringotomy was done and a moderate amount of pus was released. The smears and cultures made from this pus were negative. Spinal drainage was repeated at intervals of twelve to twenty-four hours. The chemistry of the cerebrospinal fluid remained unchanged. The cells and bacteriological examinations varied as shown on the accompaning chart. The differential counts varied from two per cent polymorphonuclears on May 15, 1939 to 90 per cent on May 21, 1939. There was always a fair Quackenstedt response. A normal pressure was noted except upon our first observation of the patient and just preceding death.

The blood cultures were repeatedly negative. Leukocytosis varied however from 14,100 on May 15, 1939 to 35,800 on May 2, 1939.

MEDICATION

Medication: Our medication consisted of sulfapyridine in seven to ten grain doses, repeated at four hour intervals from May 12, 1939 until May 19, 1939. We used twenty thousand units of Type III antipneumococcic

The pictures above were taken on May 13, 1939 and show extreme emaciation and opisthotonos.

serum (rabbit) as a treatment unit. This serum was given intraspinally and intravenously as indicated on the accompanying chart. We gave the patient 350 cc. citrated blood on May 20, 1939. He was given adequate fluids. We administered ten five cc. intramuscular injections of prontosil which apparently had no influence on the course of the case.

Results: Clinically the child showed progressive signs of meningeal irritation during the first forty-eight hours. Opisthotonos and retraction of the neck became marked. There was incontinence of bowel and bladder, deepening of coma and persistent vomiting. Following the first two doses of serum the

patient showed rapid improvement. Vomiting and incontinence completely subsided and he was lethargic but rational. Opisthotonos became less marked and the Kernig's sign was only moderately positive, but retraction of the neck continued. On May 18, 1939, an abscess in the lumbosacral region was incised and drained of two ounces of pus. Smears and cultures from the abscess were identical with those previously made from the cerebral spinal fluid. Apparently this abscess had no appreciable bearing upon the later developments.

The exacerbation of hyperpyrexia was not accompanied by a corresponding recurrence of clinical findings. The patient continued to be quite rational. The retraction of the neck was the only indication of meningeal irritation. Hydrocephalus, brain abscess, localized meningitis, acute serous meningitis, and fistulous communication between the subarachnoid space and the soft tissue abscess were considered at this time as an etiology of the persistent findings. At no time was there an increase in the cerebrospinal fluid sugar or localizing signs. Ophthalmoscopic examination of the eyes were repeatedly negative.

There was a sudden recurrence of opisthotonos on May 21, 1939, along with a sudden rise in temperature. The patient became irrational and resistive. There was also a concurrent sudden increase in the cerebrospinal pressure, in the number of cells, and in the bacteria present in the cerebrospinal fluid. Twelve hours later there was an onset of signs of pulmonary edema which progressed rapidly. Death was preceded by several generalized convulsions.

Autopsy: The autopsy revealed that there was no communication between the soft tissue abscess in the lumbar region and the spinal canal. There was neither a brain abscess nor a mastoiditis. The entire subarachnoid space was filled with turbid fluid. There were many adhesions and a thick exudate over the base of the brain. None of the organs of the body showed degenerative disease or evidence of injury from medication.

CONCLUSIONS

Comment: Treatment with pneumococcal serum was delayed occasionally due to the fact that the serum had to be transported from Pittsburgh. The serum was used as charted. When on May 18, 1939 it was found that the cerebrospinal fluid was apparently sterile we thought that the meningeal reaction might be due to the antipneumococcic serum which we had given the patient. The sudden contamination of the spinal fluid on May 21, 1939, however, indicated that in reality there must have been a block. We surmised that the serum given intraspinally had not reached some areas of localized meningitis but had successfully sterilized all fluid examined from the lumbar puncture. This was later verified by the autopsy. It is difficult to determine the value of sulfapyridine. One might theorize that this case lends support to the conception that sulfapyridine "inhibits the growth of pneumococcus." This was indicated by the initial fall in the temperature on May 12, 1939. "Ultimate recovery" and "phagocytosis" however are said to depend on the "patient's ability to develop specific antibodies." In this case we might conclude that the latter was impaired and that a more complete remission was facilitated by administration of these antibodies.

The exacerbation might have been prevented had the pneumococcal serum been continued until the cerebrospinal fluid was sterile. The pneumococcic serum was discontinud on May 14, 1939 for one day to determine if sulfapyridine alone would be effective. The sulfapyridine was discontinued on May 19, 1939 as it was having no apparent effect in retarding the disease. The fatality might have been prevented, in spite of the exacerbation, had the pneumococcic serum been given intracisternally as well as intraspinally.

321 W. Main St.

There are various conceptions as to what constitutes an ideal climate for the treatment of tuberculosis, but several authorities agree that certain climates are beneficial only to the extent that they permit patients to spend a maximum number of hours comfortably out of doors.

Tuberculosis Abstracts

Furnished Through the Courtesy of the West Virginia Tuberculosis Association

Having noticed that patients who were not receiving collapse surgery left the sanatorium prematurely (signed a release) with far greater frequency than those who did receive collapse, Dr. Kruger of the Hudson County Tuberculosis Hospital attempted to find the reasons for their apparent dissatisfaction. And with a knowledge that a goodly number of patients who sign a release return to the sanatorium later with their lesions much more advanced in extent, he attempted to create a better understanding of every patient so that they would be less inclined to leave the sanatorium before they should.

PHYSICIAN'S RELATIONSHIP TO THE PATIENT

Three reasons account for the self-discharge of patients not receiving collapse surgery: (1) a feeling of well-being, (2) conditions at home requiring their return to work, (3) the patient not sufficiently aware of the importance of bed rest in the treatment of tuberculosis and not educated properly as to the advantages of the sanatorium or hospital.

Many patients admitted to the sanatorium are not acutely ill and except for a slight cough or a sudden hemoptysis were not aware that they were ill. Mass tuberculin testing has discovered many cases of tuberculosis that are entirely asymptomatic. The news is generally received with some degree of shock, especially by those who think of tuberculosis as "consumption" and who are not aware of what can be done therapeutically. The way a person reacts to the knowledge that he has tuberculosis and will have to remain in a sanatorium for a long time depends on two factors: (1) his inherent characteristics, whether his tendency is toward an introvert or extrovert type, and (2) his station in life at the moment and his responsibilities, such as the support of a family.

EMOTIONAL TYPES

Extroversion may be defined as the turning of an interest outward toward some object. Introversion is the contemplation of one's own thoughts and feelings. Tuberculosis patients can hardly be rigidly classified into these two groups but in each individual is the tendency to lean toward one or the other and when an individual develops tuberculosis that tendency becomes more manifest. The neurasthenic manifestations encountered in tuberculous patients are not specific but are frequently seen in individuals with any protracted illness. The physician dealing with tuberculous patients must adjust and adapt them to their illness as close to the point of contentment as is possible, instilling within them the hope and certainty that they will soon recover and return to their former usefulness to society. The patient confined to a bed-rest regimen for a number of months must be made to believe in the need for such treatment.

The extrovert is characteristically carefree and unconcerned about his condition. The problem that confronts the physician is to gain the confidence of this patient and to explain the need for prolonged treatment if he is to make satisfactory progress. Occasionally one will encounter a patient who does not adequately appreciate the necessity of intensive treatment. Here one must be frankly outspoken and attempt to show what may happen if he fails to heed the physician's advice. The patient must be made to realize that he is a sick person in spite of his apparent well-being. He must be convinced of the fact that tuberculosis, when discovered early, may be easily controlled, whereas, when the disease is of a more advanced type, it is more difficult to obtain a satisfactory result. In order to obtain the full cooperation of the patient, it is essential that he be advised concerning the development and progress of the disease through the medium of education. The physician in charge must make an indelible impression on his patient.

It is with the introvert that we must use the greatest of discretion. He has kept his troubles to himself, for his best defense has been to keep his troubles hidden. It is this type of individual that should be prevailed upon to share his innermost thoughts with the physician. He must not be allowed to become depressed, for a happy patient with a happy, healthy state of mind is a most desirable asset in fighting a chronic disease such as tuberculosis. On the other hand, the practice of minimizing a patient's lesion, such as diagnosing an infiltrate as a "bronchitis" so as to avoid any "embarrassment" to the patient, is to be condemned. Too often patients are seen who state that their physician, several months prior to admission, told them that they had a "little bronchitis" or a "tiny spot on the lung" and advised only a couple of weeks' rest in bed. However, in a certain few select cases it may be perfectly justifiable to minimize somewhat the extent of the process. Those patients

(Continued on page xxix)

President's Page

Two recent developments involving the care of the indigent in West Virginia will be of interest to the Association membership. Both developments were worked out through the joint cooperation of the Department of Public Assistance and the Association's Advisory Committee.

First is the new method of rendering medical, surgical and hospital service to persons on classified assistance, which was partially covered in the Advisory Committee's report at White Sulphur Springs. Persons on classified assistance (old age, dependent mothers, etc.) receive monthly grants from matched funds of the federal and state governments. Under the new plan, when such persons require medical or hospital care, their monthly grant is increased sufficiently to absorb the doctor and hospital bill within a reasonable time. It is estimated that this new system will make available an additional $60,000.00 per year for indigent medical and hospital care. This plan is being tried out experimentally in Fayette, Raleigh and Mercer counties and will be adopted on a state-wide basis about September first.

Secondly, the Association's Advisory Committee has recently secured permission from the Department of Public Assistance to experiment in three counties with a prepayment plan for indigent medical service. Under this experiment, a certain percentage of available relief funds will be turned over to the county medical society each month to be distributed proportionately among the members who participate in rendering medical service to relief clients. County societies will be free to work out their own system of distributing medical care and distributing funds to their participating members, although reasonable standards must necessarily be adopted. The real purpose behind the experiment is to bring better and more adequate medical service to persons on relief, and to eliminate most of the red tape incident to providing such service.

These two experiments will be watched with keen interest, for their success or failure may determine the future of indigent medical service in West Virginia.

This problem is not an easy one and the funds are not sufficient to pay for all charity cases. I believe we doctors should feel that we will probably always have a certain amount of charity to do and that the best interests of the medical profession lie in carrying on as we have in the past.

Ray M. Bobbitt

President.

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THE 1940 PROGRAM

Within the next few weeks the Association's Committee on Scientific Work, headed by Dr. J. B. Clinton of Fairmont, will start preparing the scientific program for the seventy-third annual meeting to be held next summer at White Sulphur Springs. While the actual date for the 1940 meeting has not been fixed, it is understood that it will be held about the middle of July.

Association members who desire to be on the 1940 program, or who have program suggestions, are urged to get in touch with the committee before it begins its work. Each year this important committee receives a number of excellent suggestions too late for consideration. It has always been the custom of the committee to do its work early in order to secure outstanding men for program assignments. That is why program suggestions should be sent in at once. Suggestions that are received after the program is already drafted cannot be used, no matter how valuable they might be.

There is a good chance that next year's meeting may be a joint meeting with the Medical Society of Virginia. An invitation to meet with us in 1940 will be extended at the annual meeting of the Virginia Society in October. If the invitation is accepted, it is assumed that the scientific committees of the two societies will meet together in arranging the joint program.

POSTGRADUATE COURSES

While complete returns were not yet tabulated at the time of this writing, it is safe to say from early indications that this year's series of postgraduate lectures on obstetrics and pediatrics was again a marked success. In only one or two places was the attendance disappointing. The physicians who attended the lectures displayed more enthusiasm than at any time during the past three or four years. There was also a larger percentage of doctors who attended the entire series of lectures.

It now appears that there was an average attendance of approximately 20 doctors at each lecture and an overall attendance for the entire state of some 300 physicians. While this number is not as large as it should be, it still indicates a desire for postgraduate training and instruction that is extremely worthwhile. On the basis of these preliminary figures, it is safe to say that postgraduate education in West Virginia is a worthwhile endeavor and that the funds expended upon the 1939 summer courses will pay dividends for many years to come in better care of mothers and infants.

NURSES IN MINING CAMPS

It has recently come to the attention of Association officials that company doctors in the mining communities of West Virginia frequently turn their practices over to company nurses for three and four days at a stretch, and that the nurses carry on these practices without any semblance of medical supervision. If this is going on, it must and will be stopped.

This problem has already been unofficially called to the attention of some of the members of the Public Health Council of West Virginia and will be considered by the Council at its next meeting. Undoubtedly the Council will take drastic action if investigation proves the charges to be true. Nurses have neither the privilege nor the training to carry on a medical practice and physicians who sanction

such abuses are accessories to the charge of illegal practice.

There are many reasons why a nurse, no matter how competent, should not be entrusted with the health and physical welfare of a mine community. Foremost among such reasons is the fact that a nurse is not licensed to practice medicine. We have no desire to discuss the limitations of the nursing profession but the dictates of common sense tell us that the average nurse, in the face of some dire acute emergency and in the absence of competent medical advice, would be in a sorry plight. Our sympathy, however, goes to the patient.

We are inclined to believe that if such abuses are going on in West Virginia, they are not widespread. We know that the average coal company doctor who is laid up for only a couple of days with a "touch of flu" insists on protecting his patients with the services of a competent relief doctor. We know that during vacation periods and football week-ends, the Association headquarters at Charleston is besieged with long distance telephone calls from coal company physicians who insist on having experienced relief doctors take over their practices. We know, also, that the average coal company doctor in West Virginia is a conscientious individual who holds his job by providing adequate medical service to the employees in his camp. Therefore, if nurses are turned loose with the responsibility of providing medical service to any group of mine employees, we are sure that such instances are rare.

Nursing is a noble profession for which we have great admiration; second only to the practice of medicine itself. It is to be hoped that neither group will sanction abuses which will inevitably bring discredit to both. Fortunately, the Public Health Council of West Virginia will not stand for such abuses. If they exist, we predict an effective and dispassionate cleanup during the present calendar year.

ADVERTISING FOLKLORE ENDS

"Some of the most interesting folklore in the development of American advertising—legends long accepted by many popular periodicals and by many people—is about to pass into the limbo of forgotten things," *The Journal of the American Medical Association* for August 12 declares. "The Wheeler-Lea legislation seems to be functioning.

"On August 3 the Federal Trade Commission entered into a stipulation with the Lambert Pharmacal Company of St. Louis, manufacturer of 'Listerine Antiseptic,' to cease and desist from 'representing, by direct statement or by inference, that all dandruff is due to an infection with pityrosporon ovale or any other organism; that dandruff necessarily is a germ disease; that the dandruff germ has been isolated or identified; that the presence of pityrosporon ovale necessarily means dandruff or that with its destruction dandruff disappears; that dandruff is necessarily infectious, contagious or "catching" or is in all instances passed from one person to another, or that any of the foregoing assertions have been proven by findings of scientists or otherwise, or is a "scientific fact" or a "fact definitely established by scientists."'

"The Federal Trade Commission said, moreover, 'that it is also stipulated that the respondent desist from representing that the product either cures or permanently relieves dandruff; that the product "kills the dandruff germ," "attacks the cause of dandruff," "or gets at the cause" or "at the root of the trouble" or penetrates infected hair follicles or "annihilates" the dandruff germ; that the product frees the scalp and hair follicles of the parasite that saps their vitality or "spreads a germ-killing film over the scalp"; that the product has "marked curative properties due to certain ingredients in a unique combination shared by no other antiseptic"; that ordinary remedies "aren't even antiseptic," are "smelly," affect only surface symptoms, or merely remove surface symptoms temporarily, or that competitive products are obviously

inferior to "Listerine Antiseptic" as a remedy for dandruff—when such are not the facts.'

"The so-called research on which the claims of the manufacturer for this alleged virtue of listerine were based had never been accepted by competent dermatologists as authoritative; certainly there was not the slightest controlled evidence to indicate that listerine or any similar combination could have such virtue in controlling dandruff. Thus this product, which is essentially a formula like the liquor antiseptics of the National Formulary, will return to its original claims in relation to overcoming halitosis.

"The history of the advertising of listerine as a preventive of halitosis has been told on many occasions. It laid the basis for many a vast advertising campaign associated with diseases discovered by advertising geniuses who thumbed the medical dictionaries. Out of the announcements of halitosis came such emphasis as has been placed on acidosis, athlete's foot, dyskinesia and similar conditions. The halitosis campaign reached its apotheosis with the advertisement which announced that 'She Built Her Bridge Table Two Feet Wider.' Obviously her breath could be detected two feet away but not four feet from her. Then she tried listerine and didn't have to stretch any more for the cards in the dummy.

"The second decision of the Federal Trade Commission, dated August 6, involved a stipulation of the Miles Laboratories, Inc., Elkhart, Ind., with the Federal Trade Commission to discontinue misleading representation in the sale and distribution of Alka-Seltzer. This product is essentially a mixture of sodium acetylsalicylic acid with baking soda, and citric acid. Every one is familiar with the claims that have been made for the product over the radio and in other advertising.

"Now the respondent company agrees 'to cease the use of advertising matter implying that colds, neuralgia, distress after meals, and "common everyday ailments" result from excess acidity of the blood, an acid condition of the blood, or deficient alkaline reserve of the blood, and that alkalinizing effect of "Alka-Seltzer," by correcting such acid condition or restoring the alkaline reserve, will be a proper treatment for the ailments mentioned.'

"The respondent further agreed 'to discontinue representations implying that headaches, upset stomach, and aches and pains result from, or are associated with, excess acidity of the blood, an acid condition of the blood, or a deficiency in the alkaline reserve of the blood, except when the ailments mentioned may be shown by competent scientific evidence to be directly associated with such conditions of the blood, and subject to this exception, to cease making representations implying that the taking of "Alka-Seltzer," by correcting the acid condition of the blood or restoring its alkaline reserve, will be a proper treatment for such ailments.'

"The respondent also stipulated 'that it would cease representing that other therapeutic effects of "Alka-Seltzer" exceed the recognized benefits to be derived from neutralization of hyperacidity of the gastric contents or the analgesic and other effects of sodium acetylsalicylate together with the action of buffer salts.'

"According to an examination of the product in 1932, persons who follow the directions to dissolve two tablets of alka-seltzer in a glass of water get nearly nine grains of aspirin and nearly one grain of salicylic acid with their mixture of citric acid and baking soda. Those who do as suggested and take sixteen such tablets a day get over 70 grains of aspirin and six grains of salicylic acid in twenty-four hours. Whether or not the formula has been changed since that time is not known.

"It will be interesting to see what the Miles Laboratories, Inc., find to talk about now that the government has told them what they cannot say. Perhaps they will decide to tell the people that what they are offering is essentially an effervescent tablet of aspirin."

Health education has aroused intelligent public interest in the tuberculosis campaign. The general practitioner is recognizing as sound teaching that early diagnosis is our most effective weapon and he sees the patient first.

APPROVED SEROLOGICAL LABORATORIES

On page xvi of the advertising section of this issue of the JOURNAL will be found a list of serological laboratories in West Virginia which have been approved by the State Health Department to make tests for syphilis under the new premarital syphilis law. This list will be published each month for a period of one year, for the benefit of Association members who have frequent occasion to utilize such laboratory service.

While the list of approved serological laboratories on page xvi is not entirely complete, it does represent the group of laboratories which have contributed to make the publication of the page possible. These laboratories were approved by the Health Department after their results met the requirements of the American Committee on Evaluation of Serodiagnostic Tests for Syphilis.

RARE DISEASE REPORTED

The fourth case of histoplasmosis, Darling's disease, to occur in the United States is reported by Frank J. Shaffer, M.D., Washington, D. C., in *The Journal of the American Medical Association* for August 5.

The disease is caused by a parasitic micro-organism. Only seven other cases have so far been reported in the medical literature; four of these occurred in the tropics and one each in California, Minnesota and Tennessee.

The present case was an American born girl of 11 months. She showed the typically enlarged spleen, kidneys and liver and anemia; parasitic micro-organisms were found at autopsy.

The washington physicians state: "In spite of its apparent rarity, we believe that the disease may be more common in this country than is generally believed, and for this reason its clinical picture, pathology and possible epidemiologic aspects deserve the interest of the medical profession."

The authors stress the advisability of considering this disease in the differential diagnosis of any obscure case of splenomegaly (enlarged spleen), especially if the splenomegaly is associated with intermittent fever, ill health and a decrease in the number of white blood cells.

Obituaries

DOCTOR MAX W. VIEWEG

Dr. Max William Vieweg, prominent Ohio county physician, died at his home in Wheeling on August 13, 1939, of a heart attack. He was 56 years of age and had been in ill health for several months.

Dr. Vieweg was graduated from the University of Maryland School of Medicine in 1917 and served his interneship at the University of Maryland Hospital. This was followed by six months service in the army during the World War, after which the deceased entered the private practice of medicine.

Dr. Vieweg was widely known throughout the northern panhandle section of the state. He was an active member of his county medical society, the State Association and the A. M. A. He was also a member of the Masonic orders, and staff physician of the Ohio Valley General Hospital. His widow and two sons survive.

DOCTOR J. R. McCUTCHEON

Dr. J. Randolph McCutcheon, 49 years of age, died suddenly at his home in South Charleston on July 28, 1939, following a heart attack. He was a member of the Medical Society of Virginia, coming to South Charleston from Petersburg, Virginia, about one year ago. He was born in Nicholas County, West Virginia, and graduated from West Virginia University at Morgantown. In 1924 he received his medical degree from the Medical College of Virginia at Richmond.

DOCTOR J. E. ROBERTS

Dr. James E. Roberts, ex-coroner and prominent Kanawha county physician, died while on vacation at Collierstown, Virginia, on July 26, 1939, at the age of 40 years. Dr. Roberts suffered a heart attack early in July and was in failing health until the time of his death. He was a native of Charleston and had a large practice there.

Dr. Roberts graduated from West Virginia University in 1923 and two years later received his medical degree from the University of Louisville. Following a year of interneship at the C. and O. Hospital at Clifton Forge, Virginia, he took up the active practice of medicine in Charleston. At one time Dr. Roberts served as a member of the Charleston school board.

His widow, two sisters and two brothers survive.

General News

HOSPITAL SERVICE PLANS

The Commission on Hospital Service of the American Hospital Association has recently issued a bulletin on "Standards for Non-Profit Hospital Service Plans." Cities and communities contemplating such plans will be interested in some of the cardinal points made in the Hospital Association's report. The report states that the essential standards are:

1. The corporate body should include adequate representation of hospitals, the medical profession and the general public.
2. No private investors should advance money in the capacity of stockholders or owners.
3. Plans should be established only where needs of a community are not adequately served by existing non-profit hospital service plans.
4. The hospital service benefits of a non-profit hospital service plan should be guaranteed by the member hospitals during the life of the subscriber contract.
5. Subscription payments or dues received should be currently separated into "earned" and unearned" income.
6. Adequate statistics should be maintained at all times.
7. Initial working capital should be sufficient to carry all acquisition costs for operating expenses for a period of six months.
8. Payments to hospitals should be based on the costs of services provided in hospitals of that community.
9. Employees of a non-profit hospital service plan should be reimbursed by salary as opposed to a commission basis.
10. In communities with only one hospital, the finances of a hospital service plan should be separate from the general budget of the hospital.
11. Hospital service provided through a hospital service plan should be determined by the practices of the member hospitals of the particular plan.
12. Hospital service plans should not interfere with existing relationships between physicians and hospitals or between physicians and patients.

Although the cardinal principles enumerated above are of utmost importance to the successful maintenance of a hospital service plan, the experience in West Virginia would indicate that two additional principles could well be included in the list. They are as follows:

1. Hospital service contracts should be sold only to employee groups and not to random individuals.
2. Hospital service contracts should cover only ward service, with the privilege to the subscriber of occupying a private room by paying the difference between the ward and private room rate. Private room contracts should not be sold under any consideration.

Experience in West Virginia has demonstrated that group subscribers to ward service are sound and substantial risks; that plans which sell private room contracts to random individuals generally operate "in the red."

THAT HOSPITAL BILL

From the Tonics and Sedatives column of the August 19 issue of the *Journal of the American Medical Association,* we reprint the following letter received by a Colorado Hospital from a patient who had spent five days in the institution:

Gentlemen,

Your itimized bill needs some correcting, the charges may seem all right to the ones who wish to collect, but the one who pays have something to say.

I am settling for the room at $5.00 per day	30.00
Operating room, which all hospitals should have	2.00
Medicenes, which I would rather not had	4.00
Dressing	2.00
Ex. Ray—Cost about $1.00 I am allowing	5.00
Board for special nurses. I paid them and they had the money to pay their own bills.	
	43.00
Paid	20.00
	23.00

Check for 23.00 inclosed, pays bal. in full.

If this is not satisfactory, then return check. This is more than should be paid for the services for five days, and this is all I can afford to pay.

A.M.A. INDICTMENT QUASHED!

Justice James M. Proctor, upholding a defense demurrer to indictments, ruled on July 26 that the American Medical Association and its fellow defendants were not engaged in a trade as defined by

the antimonopoly statutes. Counsel for the doctors had contended their activities could not be governed by the Antitrust Law, that they were engaged in a "learned profession" rather than a trade. On December 20, 1938 a District of Columbia grand jury, acting on evidence presented by the Justice Department, indicted the American Medical Association, the Medical Society of the District of Columbia, the Washington Academy of Surgery, the Harris County (Texas) Medical Society and twenty-one individual physicians for violation of the Sherman Antitrust Law. These organizations and individuals, the indictment read, were "engaged in a continuing combination in conspiracy in restraint" of trade in hampering the activities of Group Health Association, Inc., for the District of Columbia, an organization established in 1937 to hire physicians and nurses and provide hospital care on a cooperative basis to government employees. Defense attorneys had contended that all their clients' activities were directed solely at the maintenance of the ethics and standards of the profession.

At the headquarters of the Association, officials, including Dr. Olin West, secretary, and Dr. Morris Fishbein, editor, said:

"The principles and policies of the American Medical Association do not forbid nor have they ever contemplated any opposition to a well considered expanded program of medical service, when the need can be established; neither is there any fundamental principle or policy which in any manner opposes aid to the indigent.

"The American Medical Association has always welcomed investigation by any authorized agency of the nature of its organization or of the conduct of its work or of its activities, firmly reliant in the belief that every action taken by the Association has been in accordance with its constitutional organization in the interests of the public welfare for advancing standards and quality of medical service for the American people; and that at no time has it violated the established law of the federal, state, or municipal governments of this country. Moreover, by the very nature of its organization, it has preserved constantly the democratic principles on which the Government of the United States is founded and maintained."

NEW PHYSICIANS LISTED

The following physicians were licensed by reciprocity at the July meeting of the Public Health Council in Bluefield:

Louis E. Baron, Mannington; Oscar D. Ballard, Glen Jean; Howard George Bateman, Parkersburg; Marion H. Bertling, McComas; Edgar M. Braun, Elverton; Robert M. Ferrell, Lewisburg; John D. Brown Galloway, Huntington; Keith E. Gerchow, Huntington; Henry Hurt Hancock, Union; Octavius L. Huffman, Sugar Grove; Herman P. Nyder, Huntington; William C. Huffman, Spelter; N. K. Joseph, Wheeling; William A. Klausman, Mead; Edwin C. Lane, Red Jacket; Vernal L. Lance, Logan; Albert E. Long, Weston; Charles S. Mahan, Osage; L. J. Moore, Huntington; Kenneth Munro McPherson, Beckley; Edwin Robson Nelson, Logan; Jesse L. Roark, Powellton; William Thomas Ruark, Beckley; Thos. A. Slate, Hollidays Cove; Wm. Pease Warden, Wardensville.

MATERNAL MORTALITY DROP

A sharp decrease in the maternal death rate in the United States between 1929 and 1939 is reported by Scott C. Runnels, M.D., Cleveland, in *The Journal of the American Medical Association* for July 29 in refutation of what he believes to be unjustly severe criticism of the American practice of obstetrics.

In 1929 the maternal death rate per thousand live births was 7.0. In 1937 it had dropped to 5.68. Dr. Runnels attributes much of this decrease to the increased use of hospitals for maternity cases and widespread improvement in hospital management of obstetric cases.

A comparison of the reduction in maternal mortality with that of the general mortality reveals that the former rate has fallen much more sharply. The decrease in the general mortality from 1929 to 1937 was seven per cent, as compared with 30 per cent for maternal mortality.

"While there is much that can and should be done to improve American obstetrics, the situation is not so unfavorable as both the public and the medical profession have been led to believe," Dr. Runnels contends. Forces have been at work to make criticism less and less justified, and the outlook for the future is hopeful.

"As the births of the United States increasingly occur in well organized hospitals and come increasingly under the supervision of trained obstetricians, maternal mortality and morbidity rates will continue to improve," Dr. Runnels predicts.

"Supervision by the hospital of the character of the obstetrics practiced within its walls and the en-

forcement of early consultation in the case of abnormal labor has become recognized as essential."

The total number of births in hospitals has increased 321,000, or 46.5 per cent, in four years. There has been a significant increase in the number of hospitals handling a large number of obstetric patients. "Approved hospitals are the safest possible places for delivery," says the author, "and as regulations become more effective these hospitals are becoming safer. Unapproved hospitals do not have a commendable record, and hospitals that have too small an occupancy to maintain isolation are a distinct menace. The figures point to the conclusion that unless a hospital can meet the approved standards for obstetric care it should not take obstetric patients."

In explaining why some of the criticisms leveled at American obstetrics are not wholly justified, Dr. Runnels cites statistics which show that abortions and ectopic pregnancies (development of the ovum outside the cavity of the uterus), as well as other minor reasons, cause a considerable proportion of those deaths classed as maternity mortality. These are in no sense dependent on obstetric management. Such deaths, the author says, "are a proper component of the puerperal death rate, which denotes the risk of pregnancy, but not of the obstetric death rate, which denotes the risk of delivery. The obstetric death rate is somewhat less than three-fourths of the puerperal death rate."

Because the hospital puerperal death rate is larger than the home rate, many have unthinkingly criticized the hospital as being unsafe for births. Such criticism overlooks the fact that women who otherwise would have been delivered at home are taken to the hospital because of the development of some serious condition that makes care in their home environment inadequate.

"A great number who would have died at home are saved by the efficient care available in the hospital," says Dr. Runnels. "However, the hospital death rate will continue to increase as long as women are rushed to the hospital as a last resort."

The puerperal mortality of cities varies from 10 to 20 deaths per 10,000 births in excess of that of rural areas. The increase since 1920 in the preponderance of urban puerperal deaths can be attributed to the increase in the prestige of the urban hospital during that period and to the fact that patients in a serious condition were taken to the city hospitals in a final effort to save life.

GOLDEN TUMOR CLINIC

The fifth annual meeting presented by the Golden Clinic of Elkins was held on Saturday, August 12, 1939. There was a fine attendance of physicians from all parts of the state and an excellent scientific program was presented. The scientific meetings were held in the Katherine Elkins Hitt Memorial Hall for Nurses at the Davis Memorial Hospital. The banquet was served in the Presbyterian church and the event closed with a dance at the Elkins Country Club.

Out-of-state speakers included Dr. James F. McCahey of Jefferson Medical College, Philadelphia; Dr. David Scherf of Vienna, Dr. Earl B. Craig of Hahnemann Medical College, Philadelphia; Dr. Robert H. Kennedy of the Postgraduate Medical School, Columbia University, New York City, and Dr. Charles L. Schmitt of the Pittsburgh Skin and Cancer Foundation. Dr. Oscar B. Biern, Huntington, served as banquet toastmaster and Dr. Ray Bobbitt, Huntington, Association president, was one of the banquet speakers.

The West Virginia Heart Association met during the noon hour in connection with the Elkins meeting. Dr. R. J. Condry was in charge.

PHYSICAL THERAPY CONGRESS

The eighteenth annual scientific and clinical session of the American Congress of Physical Therapy will be held September 5, 6, 7, 8, 1939, at the Hotel Pennsylvania, New York City. Preceding these sessions the Congress will conduct an intensive instruction seminar in physical therapy for physicians and technicians.

While the convention proper will have numerous special program features of scientific interest, the added attraction of the World's Fair should make it extremely worthwhile for every physician to come to New York and spend a profitable vacation.

The instruction seminar should prove of unusual interest to physicians and technicians. The clinics which comprise half of the schedule make this course outstanding for its practical value. As in the past outstanding clinicians and teachers will participate. Registration is limited to 100 and is by application only. For information concerning seminar and preliminary program of convention proper, address American Congress of Physical Therapy, 30 North Michigan Avenue, Chicago.

County Society News

CABELL COUNTY

A special called meeting of the Cabell County Medical Society was held at the Governor Cabell Hotel, Huntington, on Tuesday evening, August 15, 1939. The meeting was devoted to business matters. There was discussion of medical care of the low income group and of the care of city and county indigent patients.

Dr. George M. Lyon has resigned from the School Health Problems Committee and Dr. Raymond Sloan has been appointed in his stead.

JAY L. HUTCHINSON, *Secretary.*

MERCER COUNTY

A special meeting of the Mercer County Medical Society was held at the Memorial Building, Princeton, on July 18, 1939, at the request of the president, in order to discuss with representatives from the Public Assistance Administration ways and means for furnishing medical care to public assistance cases. In the absence of the president and secretary, Dr. H. G. Steele and Dr. D. L. Hosmer were appointed to fill the offices pro tem.

Dr. D. L. Butterfield, of Charleston, medical director of the Public Assistance Administration, addressed the meeting in regard to a proposed method for caring for certified public assistance cases. This new method is suggested in view of the fact that the budget in this group of cases has been reduced 25 per cent as of July 1. Dr. Butterfield suggested that the new method for medical care for this group be tried out in Mercer county for a period of 60 days.

The method suggested is essentially that the amount of money paid to these individuals be raised to the maximum, which is $30 per month, and that the difference between that usually paid to the individual be paid in monthly installments to defray any medical, dental, or hospital cost. The medical, hospital or dental charges for such cases and the type of service rendered these people is to remain the same as previously. The increased payment is made to the individual and the individual is to pay for the medical charges directly. The individual is advised previous to the raising of his grant by the county administrator that such increase is allowed only that he may pay his medical bill. The type of cases cared for are those in a classified assistance group who are acute or emergency cases.

It was moved by Dr. Frank Holroyd and seconded by Dr. R. O. Rogers that this procedure be given a trial in Mercer county for 60 days. This motion carried.

Mr. Goff, local agent for the Farm Security Board, was introduced and explained a method by which farmers could obtain financial aid through his department for paying of hospital and medical care. However, inasmuch as this was a special meeting called for a specific purpose, no action could be taken in regard to these suggestions.

D. L. HOSMER, *Acting Secretary.*

PARKERSBURG ACADEMY

The winter program of the Academy of Medicine of Parkersburg is rapidly nearing completion and a number of interesting meetings have already been lined up. Dr. Louis H. Douglass, Professor of Obstetrics at the University of Maryland, is to be the guest speaker at the first gathering in September. A number of pending business matters will also be brought before the society at the September meeting.

Dr. A. R. K. Matthews, Parkersburg pathologist, is leaving this fall to accept a position at Rockford, Illinois.

The last meeting of the society was held on July 26 and was devoted to business matters. A special committee composed of Dr. J. L. Wade, Dr. R. S. Widmeyer and Dr. R. H. Wharton was appointed to iron out certain problems relating to hospital service. Dr. Wade was also elected as a member of the Board of Directors of Hospital Service in Parkersburg.

At the meeting of the society on June 7, Dr. T. R. Boling of Grantsville was elected to membership.

A. C. WOOFTER, *Secretary.*

GLASSES AND EYE INJURY

Glasses can cause no permanent injuries to the eyes, Conrad Berens, M.D., New York, declares in the August issue of *Hygeia, The Health Magazine.*

Some persons who have become accustomed to better vision through wearing glasses forget how poorly they once saw and believe the glasses are responsible for the defects which still remain, he points out.

TWENTY-FIVE YEARS AGO

Taken from the West Virginia Medical Journal for August, 1914

Essayists in the August, 1914, issue of the West Virginia Medical Journal included Dr. Wade Gaston, Dr. James R. Bloss, Dr. W. W. Golden and Dr. H. H. Haynes. Also a Berlin letter from Dr. R. J. Reed relating to the "American Surgeon's European Clinical Tour." West Virginia had three representatives, Dr. Forman of Buckhannon, Dr. O. O. Cooper of Hinton and Dr. Reed of Wheeling.

* * *

The Barbour-Randolph-Tucker County Medical Society met at Thomas with a small attendance, largely due to sickness. Speakers included Dr. O. H. Hoffman on "Erysipelas," and Dr. A. P. Butt, who reported on the state meeting at Bluefield. "The society was elegantly entertained with a lunch at the Imperial Hotel."

* * *

Recent speakers before the Ohio County Medical Society were Dr. H. E. Osterling, Dr. J. A. Monroe, Dr. E. L. Armbrecht, Dr. J. L. Dickey, Dr. W. S. Fulton and Dr. Jacob Schwinn.

* * *

Changes in location in July, 1914, were made by Dr. F. F. Farnsworth from Williamstown to Belleville, Dr. A. U. Tieche from Welch to Davy, Dr. J. H. McCulloch from Welch to Charleston, and Dr. B. H. Swint from Charles Town to "place unknown."

* * *

The physicians of Clarksburg have established a library in which the members are greatly interested. They have also purchased a baloptican at a cost of $80.00 with which they can throw pictures from a book upon a screen eight feet in diameter. With this instrument they are giving public exhibitions of the A. M. A. cartoons in one of the local motion picture houses.

The best use to which man can put his predatory instincts is the ruthless pursuit of hidden disease. The hunting in the field of tuberculosis is unusually good. We have an increasingly efficient public health service with a tuberculosis control program well under way in places, developing in others. Health education has aroused intelligent public interest in the campaign. The general practitioner is recognizing as sound teaching that early diagnosis is our most effective weapon and he sees the patient first. Emerson, Kendall, Jour.-Lancet, Apr., 1939.

Woman's Auxiliary

CONVENTION TRANSACTIONS

The Woman's Auxiliary to the West Virginia State Medical Association held its fifteenth annual meeting in White Sulphur Springs at the Greenbrier Hotel, July 10, 11, 12, 1939.

Registration began on Monday, July 10, at two o'clock p. m. and 87 members registered. At four o'clock the executive board met with Mrs. Frank S. Harkleroad presiding. The evening's entertainment included movies presented in the hotel auditorium.

On Tuesday morning, July 11, the Auxiliary Convention opened formally with a meeting in the Virginian Room, at nine o'clock. The President, Mrs. Harkleroad, presided. The officers' reports and the reports of the chairmen of the various Auxiliary committees were presented.

Mrs. R. H. Walker, Charleston, presented the report of the Credentials Committee. Mrs. Ralph Hogshead, Montgomery, gave the "In Memoriam" report. Mrs. H. V. Thomas read the report of the recording secretary; Mrs. George Fordham, the corresponding secretary; Mrs. B. B. Nicholson, the treasurer, and the auditor's report was also read by Mrs. H. V. Thomas.

Mrs. Russel Kessel, as state chairman of the Archives Committee gave her report. Mrs. G. A. Ratcliff of the *Hygeia* Committee reported the following subscriptions: Cabell, 11; Fayette, seven; Harrison, 17; Kanawha, 88; Logan, 15; McDowell, 65; Parkersburg Academy of Medicine, 17.

Mrs. R. H. Walker, Legislation Committee, presented her report. This being legislative year in West Virginia, Auxiliary members observed with care the measures in which the medical profession had more than a passive interest either "pro" or "con" and were ready to lend assistance if called upon.

Mrs. W. V. Wilkerson reported for the Program Committee, stated that the program suggestions for 1938-1939 were planned in August of last year by the state president and the state program chairman. The subjects used were based on suggestions from the national chairman, the State Department of Health, and the American Medical Association. This committee, with the aid of the county Auxiliaries, presented the State Medical Association

with sixty-five biographies and pictures of the past presidents of the State Association.

Mrs. A. G. Rutherford reported for the Research and Romance Committee, mentioning with due praise the contribution of Mrs. F. S. Harkleroad, entitled "West Virginia's First Woman Doctor." This has been filed with the National Research Department of the Auxiliary.

Mrs. H. F. Troutman of the Public Relations Committee reported on the activities of the Auxiliary county organizations and their work in establishing contacts with outside groups such as Community Chest, Red Cross, Y. W. C. A., State Nurses Association, and others.

The reports of the Exhibits, Historian, Parliamentarian, Budget, Resolutions, Press and Publicity, Speakers' Bureau, and Revisions Committees were also presented and approved.

The President's Annual Report by Mrs. Harkleroad was received with interest and enthusiasm.

Mrs. David W. Thomas, Lack Haven, Pa., addressed the Casino luncheon on "Our Auxiliary." Mrs. V. E. Holcombe, A. M. A. president-elect, introduced the guest speaker.

At 4:30 o'clock in the afternoon there was an exhibit tea in the organ room with Mrs. H. P. Evans and Mrs. Paul Spangler presiding. The tea was a charming affair with the background of Mr. Portnoff's organ recital. Grace Yoke White, poet laureate of West Virginia presented "Nesting Time."

On Wednesday morning, July 12, a breakfast was held in honor of the past presidents of the Auxiliary. Mrs. S. S. Hall, Mrs. E. H. Starcher and Mrs. Walter Swann were hostesses.

The general meeting for Wednesday was held at ten o'clock in the Virginian Room, Mrs. Harkleroad presiding. The report of the Nominating Committee was presented by Mrs. S. S. Hall, chairman. The election and installation of officers followed, and the meeting adjourned to the Casino for luncheon at one o'clock. The guest speaker was Dr. Nathan B. Van Etten, president-elect of the American Medical Association. Mrs. Frank S. Harkleroad's article on "West Virginia's First Woman Doctor" was read to the assembly. There followed the presentation of Mrs. V. E. Holcombe, president for 1939-1940, who, in her capacity as president-elect of the A. M. A. Auxiliary, addressed the group.

Auxiliary officers for 1939-1940 are as follows: President, Mrs. V. E. Holcombe, Charleston; president-elect, Mrs. H. V. Thomas, Clarksburg; first vice president, Mrs. Scott A. Ford, Edwight; second vice president, Mrs. E. Vermillion, Welch; third vice president, Mrs. W. V. Wilkerson, Prenter; secretary, Mrs. G. A. Ratcliff, Huntington; treasurer, Mrs. Robert B. Price, Charleston; corresponding secretary, Mrs. Daniel N. Barber, Charleston.

Standing committees: Archives, Mrs. R. H. Walker, Charleston; auditor (finance), Mrs. Berlin B. Nicholson, Parkersburg; convention, Mrs. James S. Klumpp, Huntington; credits and awards, Mrs. James L. Wade, Parkersburg; exhibits, Mrs. E. J. Humphrey, Huntington; historian, Mrs. Ralph Hogshead, Montgomery; *Hygeia,* Mrs. P. C. Spangler, Pageton; legislation, Mrs. George F. Evans, Clarksburg; necrology, Mrs. J. P. Helmick, Fairmont; organization, Mrs. H. V. Thomas, Clarksburg; parliamentarian, Mrs. Charles L. Parks, Fairmont; philanthropic, Mrs. E. Vermillion, Welch; press and publicity, Mrs. J. L. Patterson, Holden; printing and supplies, Mrs. W. O. McMillan, Charleston; program, Mrs. A. Seletz, Charleston; public relations and speakers' bureau, Mrs. Philip Johnson, Fairmont; radio publicity, Mrs. R. C. Bond, Wheeling; revisions, Mrs. S. S. Hall, Clarksburg; special projects, Mrs. M. I. Mendeloff; southern medical, Mrs. L. E. Steele, Logan.

The members of the State Association who are newly appointed to the Advisory Board are: W. A. McMillan, M. D., Charleston; James S. Klumpp, M. D., Huntington; Philip Johnson, M. D., Fairmont; Mrs. E. H. Starcher, Earling; Mrs. F. S. Harkleroad, Beckley. National advisor, Dr. James Bloss, Huntington.

PRESIDENT'S SUGGESTIONS

Mrs. V. E. Holcombe, state Auxiliary president and national president-elect presents the following summary of instructions and opportunities for the coming year, which is abstracted from her White Sulphur Springs report.

The historian is responsible for all matters that go into the hands of the chairman of archives to be filed as a permanent record. However, the historian is not responsible for what this record is. It is her duty to pass on to the chairman of archives only the records of such proceedings as have come to her through the state and county Auxiliaries.

Therefore, it is the responsibility of each county Auxiliary to see that her records are correct.

The cooperation of state and county officers, past and present, will be necessary to make this undertaking a success.

It is the duty of the state convention chairman to formulate the plans for the annual convention and to look after the detailed arrangements to make possible a successful session. Directions in full may be found in the handbook for state Auxiliaries.

Exhibits present a vital picture of the work that is being done by the various county Auxiliaries. Exhibits play an important part in the making of history for the Woman's Auxiliary. Through this medium the county Auxiliaries have an opportunity to show material evidence of their interest and work in the field of health education.

You are urged to keep your financial accounts and records accurate and up to date with names and addresses of paid-up members. This record is most essential to our treasurer and necessary if we are to keep our books in order.

Since our objective is to give an intelligent and comprehensive interpretation to the laity of the great underlying purpose of the medical profession, we should assume as our task the addition of at least one new *Hygeia* subscriber for each Auxiliary member this year.

Last year two counties, Kanawha and McDowell received honorable mention in the national *Hygeia* contest for increase in *Hygeia* subscriptions. Our hope is that this year West Virginia will succeed in winning one or more of the prizes in the national contest and the remaining counties will receive honorable mention.

It must be remembered that no program of legislation can be undertaken without the approval of the State Medical Society. However, it is of vital importance that the Auxiliary workers of each county should be familiar with the legislation of her state as relates to this important subject. Each Auxiliary is urged to promote an educational campaign among its members on present and proposed health laws, that they may be prepared to work intelligently for the passage of legislation of merit and against that which is inimical to the public and the profession.

At our annual meeting it is the solemn duty of the chairman of necrology to conduct the "In Memoriam" service for our deceased members. A copy of the proceedings used in this service is to be sent to the bereaved families.

The wife of every doctor in West Virginia should be a member of the Auxiliary. Organization can be kept alive only by development, progress, and growth, and to this end we urge the organization of more counties in West Virginia. We have nine Auxiliaries in our state, with 369 members, but this is not enough. The responsibility of organization cannot rest on the shoulders of one or two persons. Each Auxiliary member should take her share of responsibility.

THE WEST VIRGINIA MEDICAL JOURNAL carries a page of Auxiliary news. Let us this year strive as never before to make this Auxiliary page so interesting that it will become the most widely read page of the JOURNAL each month.

The quarterly *National News Letter* is of great value to every interested Auxiliary member and a necessity to each state and county officer.

Your state chairman of health education and program has prepared an outline of programs for county Auxiliaries which has been approved by the Advisory Council. Conditions must govern county programs, taking only from the state program that which fits local needs. May I urge you to take advantage of the suggestions of your state program chairman and of her offer to assist you at all times with your health program.

It is the duty of the Public Relations Committee to contact the public and in a tactful and acceptable way, convey the message of health as outlined by organized medicine.

The American Medical Association presents each week during the winter months a radio program of dramatized health messages, intended to furnish graphic supplementary material for health teaching in the junior and senior high schools. Much of this material is also useful for elementary schools. Publicize these radio broadcasts in the schools of your county.

It is the ambition of your president that we bring our constitution and by-laws up-to-date. The successful accomplishment of this work will need the concentration and the best efforts of this committee. It is a large undertaking.

Our special projects for the coming year include continued research for material on pioneer doctors of West Virginia and a history of the first 15 years of Auxiliary organization in West Virginia.

The most liberal man has to guard against the temptation to put into effect liberal aims by totalitarian methods.—Struthers Burt in *The Forum*.

Public Health

The material in this monthly column is compiled and furnished by the West Virginia State Health Department

PREMATURE INFANTS

Prematurity naturally carries with it a high mortality, which is due to the fact that the physician is faced with the problem of taking care of an infant who is not fully equipped to get along in the outside world. These infants are extremely sensitive to the effects of temperature changes and are very susceptible to infection.

It is a known fact that the dangers of birth trauma and the dangers of asphyxia, due to the use of anesthetics and analgesics, is much more manifest in the premature than in the full term infant. This calls for special consideration by the physician in charge when delivering the premature. Prematures are more likely to be born of the mother who is suffering from one of the toxemias, one of the hemorrhage conditions of late pregnancy or some systemic disease. This often results in a premature being born who is not only a premature as to time but also a premature who is debilitated as well. The growing tendency for the induction of labor in the women suffering from the toxemias of late pregnancy influences the incidence of premature births.

Even though the chances for the survival of the premature are often quite slim, many can be saved, as has been demonstrated in such centers as Chicago. In a study of the neonatal deaths in Chicago in 1936-1937, it was found that the complications most often leading to premature births are (1) toxemia, (2) external violence, (3) placenta prævia, and undetermined causes. It was concluded that "In the prevention of prematurity from toxemia and external violence, as well as from other causes, provision of the best possible antepartum care may be of some aid."

The experience in West Virginia for the past five years, so far as prematures are concerned, is as follows. The mortality rates are based on the number of deaths reported as due to prematurity per 1000 live births:

Year	Number of Births	Number of Deaths Due to Prematurity	Rate
1934	41,509	734	17.9%
1935	41,775	716	19.3%
1936	40,855	699	17.1%
1937	42,246	740	17.5%
1938	42,439	671	15.8%

The birth certificates were checked for the year 1938 and it was found that out of 42,439 births reported, 1,053 or 2.5 per cent were reported as prematures. Out of 1,053 prematures, 671 deaths due to prematurity represents a mortality of 63.7 per cent.

In West Virginia every full-time health service has an incubator for loan where there are cases of prematurity in the home. While these incubators are not elaborate, they have proven very satisfactory in many cases throughout rural West Virginia. It is only necessary for the physician to call the local health department and the public health nurse will deliver the incubator to the home and will show the attendant how to operate it.

The hospital that is suitably equipped is the best place for premature infants. All prematures should be taken care of in a hospital. The incubator service is not intended to supplant hospital care but only to supplement hospital care. There are many prematures born in homes where there are no funds available for hospitalization.

PUBLIC HEALTH OFFICER

Dr. John B. Hozier of the U. S. Public Health Service, has been detailed to West Virginia for the coming year, it has been announced by Dr. A. E. McClue, state health commissioner. Dr. Hozier has been assigned to the bureau of venereal disease and will relieve Dr. C. N. Scott, director of that bureau, when the latter goes to Johns Hopkins University in September for postgraduate work.

Dr. Hozier was previously detailed by the U. S. Public Health Service as full-time health officer of Wetzel county and since that time has spent a year in the study of the control and treatment of syphilis under Dr. J. Earle Moore of Johns Hopkins University and is well qualified to assume the duties of acting director of the bureau of venereal disease.

HEALTH OFFICERS NAMED

The following nominations as part-time health officers were approved by the Public Health Council at their recent meeting in Bluefield:

Dr. O. F. Mitchell, Franklin; Dr. D. B. Lepper (full-time) Bluefield; Dr. B. S. Clements, Matoaka; Dr. A. M. Fredlock, Elkins; Dr. G. P. Morison, Ranson; Dr. W. W. Strange, Huntington; Dr. R. A. Updike, Montgomery; Dr. E. A. Courrier, Keyser; Dr. C. C. Johnson, Harpers Ferry; Dr. G. P. Morison, Charles Town.

Neighbor Journals

DAMON RUNYON SAYS . . .

Of interest to every member of the medical fraternity is the following Damon Runyon excerpt, which makes his "Old Man" out as a gentleman of understanding philosophy:

"Our old man used to say that he guessed the percentage of scoundrels was less among doctors than any other class of men, professional or otherwise, in the world. He said that in his whole life he had never encountered more than two or three doctors who were out-and-out bad 'uns.

"Our old man said that whenever his faith in humanity commenced to falter, he just contemplated the character and works of the doctors he knew and that bolstered him up right away. He said that whenever he passed certain doctors in our old home town of Pueblo, he felt like taking off his hat as a mark of respect to them, only that action would have embarrassed the doctors.

"Our old man said people took doctors too much for granted. He said if a fellow jumped into a river and, at no great risk to himself, rescued a drowning man or woman, the paper made a big noise about the incident and pronounced the rescuer a hero. Maybe, he even got a medal or some other token of his bravery, but our old man said the very same day some doctor might save the lives of half a dozen people by his skill and devotion, and you never heard of the matter.

"Our old man said you might read stories in the papers every day over quite a period about the fight some prominent man or woman was making for life against illness and about how, eventually, they won out, but he said you never read anything about some doctor's part in that battle. He said you never read how the doctor sat there day and night struggling for the patient's life even when the task seemed hopeless.

"He said you would think from what the papers said that the patient's own fortitude was responsible for defeating death rather than the skill of the doctor. He said a lot of patients generally thought pretty much the same way after they got well, especially when the doctor's bill came in.

"Our old man said it was astonishing how little credit a patient whose life had been saved was willing to give the doctor after he got the bill.

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He said any person at death's door would always be glad to give all they possessed to live awhile longer, even though their possessions amounted to millions, but after some doctors pulled them back from the dark abyss and they got to walking around again, they were not willing to pay even a minute percentage of their holdings.

"Our old man said he never could understand why most people seemed to feel that the doctor's bill was the very last they were obligated to pay. He said his own life had been saved several times by doctors and that he always paid the doctors first and let the other debts incurred during his illness wait. He said he figured that had the doctor not saved him and put him in action again, the others would never have been paid anyway.

"Our old man said he knew fellows there in our old home town of Pueblo who always kept their doctor waiting for months and even years for his money while in the meantime they lived high themselves and entertained and wore good clothes. He said that these fellows, even while indebted to the doctor, had no compunctions of conscience about calling him again in case of illness."—*The Ohio State Medical Journal.*

DRINKING DRIVERS

Due to the looseness of existing traffic codes the drinking driver is given a valid, though somewhat left-handed argument when it comes to showing that a few libations do not impair his ability as a motorist. He can usually show that his driving is done more carefully, and with less danger of accident, than that of the epileptic, who might fall unconscious at the wheel, and others with unbalanced minds or unbalanced nerves, who are permitted to operate motor vehicles without the slightest restriction under the law.

This was stated to the first Pacific Coast Traffic Officers Training School at the University of California by Dr. George K. Rhodes, associate professor of clinical surgery in the university's medical school in San Francisco. Doctor Rhodes suggested that the best way for the public to upset that dangerous argument would be to devise a system whereby the prospective driver would be subjected to a medical examination and other tests.

Doctor Rhodes presented figures tending to show that 46 per cent of the traffic arrests are for drunken driving and that about 12 per cent of the average driving public are suffering from varying degrees

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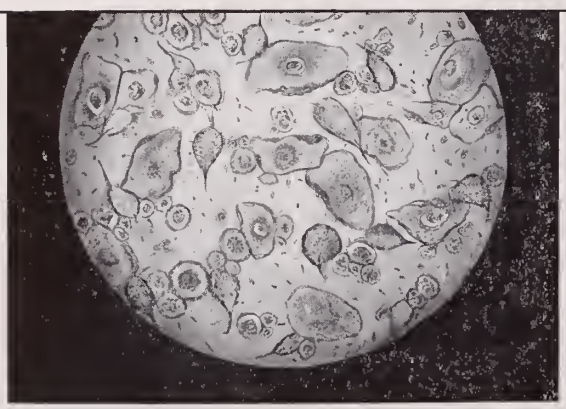

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of intoxication. Answering the question as to when a driver may be considered intoxicated, Doctor Rhodes said that a concentration of one-tenth of one per cent alcohol in the blood would begin to show indications of intoxication. A concentration of between 1-10 and 2-10 of one per cent would show actual intoxication, and from 2-10 to 3-10 of one per cent would show a dangerous degree of intoxication, particularly for the man himself, so dangerous in some instances that artificial respiration might be needed.

One out of every 250 drivers may figure to be intoxicated in some degree, Doctor Rhodes said. The peak age for drunken driving appears to be between 25 and 30.—*California and Western Medicine.*

VITAMIN EXPLOITATION

It begins to look as if the program of selling the public on the value of nutrition as a health safeguard has become a bit confused—perhaps out of hand. Maybe it is about time for the medical profession to step in and try to restore sanity.

The public is being flooded with advertisements and circulars from various sources — even some groceries are doing it—urging greater consumption of products rich in vitamin content and even of vitamin concentrates in tablet, pill or capsule form.

Looking at the matter entirely from the angle of what is or isn't good for the public health, we cannot help but doubt that there can be any accrual to the public health from blind consumption of vitamin concentrates.

Vitamin preparations are of value and have their place in modern medicine. They are too valuable and necessary to be subjected to the bad effects of exploitation and unwarranted claims through exaggerated advertising.—*Ohio State Medical Journal.*

THE A. M. A. ACQUITTAL

The *Chicago Daily Tribune,* under date of July 28, says editorially under the heading "Doctors Upheld," we quote:

The indictment against the American Medical Association, a number of affiliated societies, and 21 of their officers and members has been dismissed by United States District Judge James M. Proctor. A spokesman for the attorney general has said that an appeal will be taken.

The defendants had been charged with violating the anti-trust laws. The judge said there could have been no violation because these laws are directed

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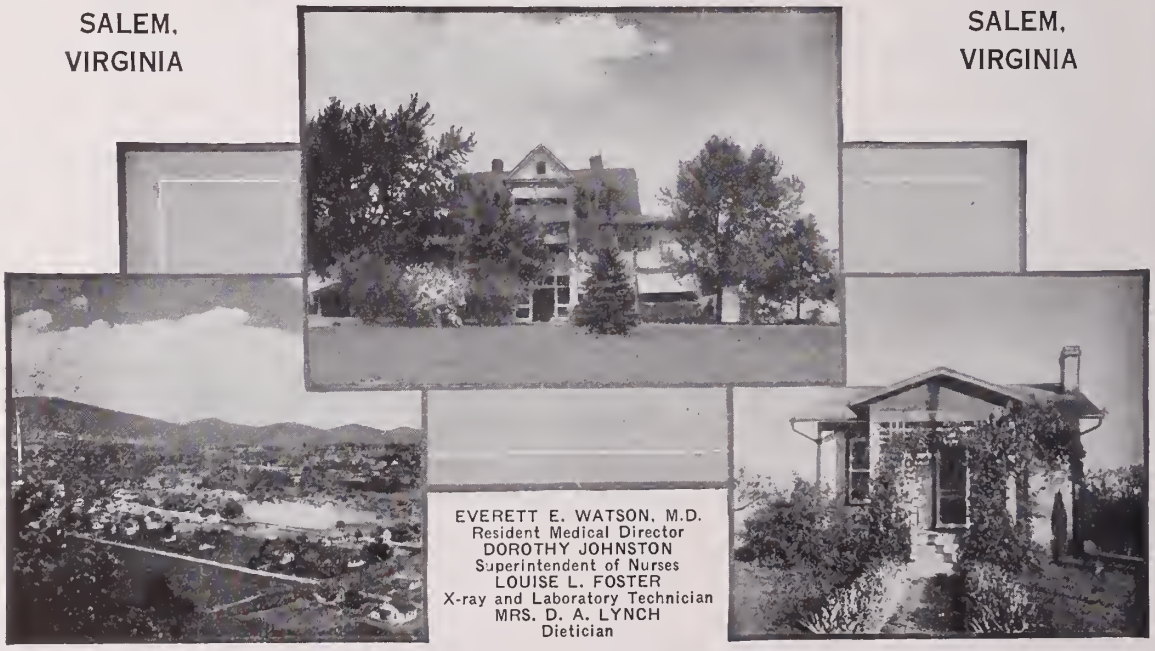

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against conspiracies in business or trade, whereas the practice of medicine is a profession and therefore wholly outside the scope of the acts. Further than that, he found the indictments to be "afflicted with vague and uncertain statements," which "smacked of highly colored, argumentative discourse."

The rebuke to the administration and its anti-trust division was as sharp as it was merited. The tables have now been turned. The doctors have been acquitted of any intention to violate any law; the administration has been convicted of a conspiracy to abuse the law and its processes.

The indictments were obtained because the doctors, through their associations, had chosen not to fall in with the New Dealers' notions of the way in which medicine should be practiced. As usual, the administration could not tolerate dissent.

Perhaps it was thought that the medical societies and their members would lack the courage to fight and would accept a so-called consent decree rather than run the risk of fine and imprisonment. If so, the expectation was disappointed. The doctors refused to consider a shotgun decree, they did fight, and they won a victory which may hearten others in similar circumstances to stand on their rights and resist oppression.—*Illinois Medical Journal.*

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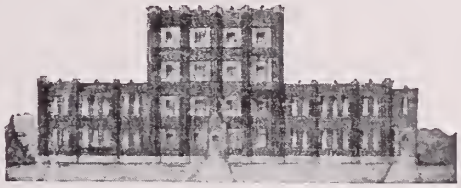

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ANGINA PECTORIS

Angina pectoris cannot be given as a cause of death, George Dock, M.D., Pasadena, Calif, declares in *The Journal of the American Medical Association* for August 12.

Pointing out that angina pectoris refers only to symptoms and not to a definite disease entity, Dr. Dock contends that whenever the term is used "it must be with the conviction that the name refers only to symptoms and demands a prompt and thorough differential diagnosis to exclude all other causes of pain, or to assign them their significance. Its adoption also necessitates an exact and persistent search for evidences of coronary disease and a prompt and intensive plan of treatment to meet all possibilities.

The term angina means a disease or symptoms characterized by spasmodic suffocating attacks, and the word pectoris refers to the chest. The author points out that "angina" was used as early as the sixteenth century to designate cases of quinsy or sore throat in which a feeling of strangling and anxiety entered. "Chest pain" was therefore an apt name for the group of symptoms that arrested the attention of William Heberden, who first used the term angina pectoris.

TUBERCULOSIS ABSTRACTS

(Continued from page 433)

who are apprehensive and worried about themselves must be reassured and convinced that their trouble is not too far advanced and that with time they will recover. An attitude of optimism must be assumed by the doctor and imbued in the patient. The mere mention of the word "cavity" may cause them to become panicky and apprehensive.

WINNING CONFIDENCE

When making staff rounds it is best not to discuss the case in front of the patient, except in the form of encouragement. The patient will listen intently and will invariably misinterpret every statement. The physician should devote as much time as possible to obtaining a sympathetic understanding with the patient and discuss at length any problem that may be brought up, no matter how trivial it may seem. He should be encouraged to keep interested in the news of the day. The widespread use of the radio is endorsed; its effects on the well-being of the patients have been so encouraging that in the new Hudson County Tuberculosis Hospital, every bed is supplied with an individual ear-set, so

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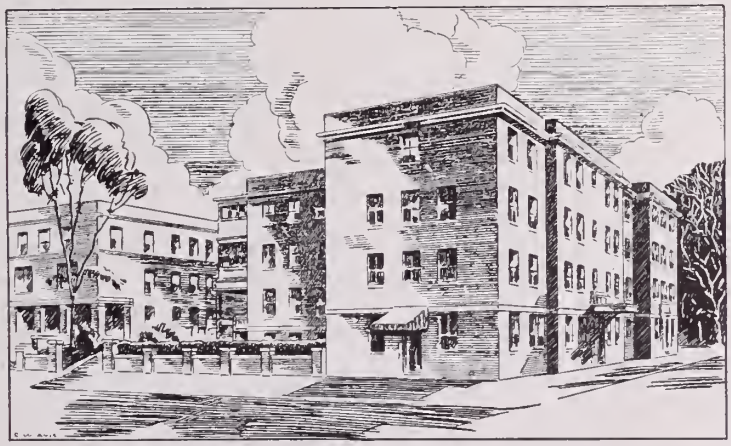

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that a patient may have the choice of listening to one of four different programs without in any way interfering with the other patients in the ward.

When pneumothorax is attempted and fails, the patient will become despondent, feeling that his only hope for recovery is lost. To obviate this apparent setback one must explain that pneumothorax is merely an adjunct in the treatment; that the patient will improve with bed rest alone, but that if pneumothorax is successful it will help rest the lung a little more and tend to hasten recovery.

One has to contend with patients wanting to be discharged because they feel they can continue bed rest at home. This is not true. The majority of those who sign a release become careless and soon have to return because of reactivation of the lesion. With this group the physician must stress the dangers involved, frankly and outspokenly. Citing as an instance an individual, known to the patient, who having refused advice has had to return with an advanced lesion, often helps him to comprehend the significance of his intentions.

WHAT REST MEANS

One thing must be emphasized to all tuberculous patients, that rest means not only physical rest but also mental rest. The object of physical rest is to diminish the work of the lungs by diminishing the number and extent of the respiratory excursions. Yet, what good is such physical rest if the patient maintains a state of high nervous tension as seen in the neurasthenic type of individual? It is not infrequently noted that patients with extensive pulmonary involvement who are cheerful and mentally stable show a favorable progress.

The tuberculous person must be shielded from the cares and responsibilities of home and business. Friends and members of the family must be cautioned against bringing any news to the patient which may in any way disturb him. For that reason, sanatorium care for the patient is the desirable thing, whenever feasible, for here the individual is more or less isolated from home influences, which, although well meant, are not always to the patient's best interests and, in addition, he is under constant supervision with the knowledge that he is in the same hospital with a number of others similarly afflicted and all having the same goal. Also, from a public health standpoint, his chances of spreading his infection are minimized.

The Relation of the Physician to the Tuberculous Patient, Alfred L. Kruger, M.D., Jour. of Amer. Med. Assn., Vol. 112, No. 21, May 27, 1939.

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EUROPEAN OR AMERICAN MEDICINE *

By NATHAN B. VAN ETTEN, M. D., President-Elect, A. M. A.
New York City, New York

SHALL we be dominated by dictators or by the needs of the people? The future of medicine will be determined by the citizens of this republic. If the citizens are ignorant, the practice of medicine will suffer; if they are informed, American medicine may still go forward. Medicine has survived the rise and fall of many civilizations. I predict that its progress can only be temporarily delayed and that it will go on to greater heights of service long after all of the actors of the present generation have left the stage.

An inspired propagandist says that there are forty million people in the United States who are suffering from the lack of medical care because their incomes are less than eight hundred dollars with the consequence that they are unable to maintain adequate standards of living. The remedy he prescribes is socialized medicine after the European manner. He views American evolution as immature when it hesitates to embrace social systems which seem to many Americans to have failed in Europe and to be poor substitutes for developing programs which have brought medical care in America to higher accomplishments than elsewhere in the world, with the possible exception of the Scandinavian countries.

THE AUTHOR

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The propagandist admits American superiority and says that the reason for it lies in a higher standard of living. When he contrasts small countries, whose populations are homogeneous, to America, which Theodore Roosevelt once called a polyglot boarding house, he pays us a real tribute. The difficulty of matching Denmark in the eradication of syphilis is obvious, but American medicine is enlisted in the fight for that objective.

He says with finality that there is no further need for surveys to uncover the lack of medical care of the substandard forty millions

*Read before the West Virginia State Medical Association at White Sulphur Springs, West Virginia, July 12, 1939.

—that we now know all there is to know about these neglected people.

On the contrary I believe that there is more need than ever to discover the extent of human suffering among people who are existing miserably and the extent to which medical care fails to reach them.

Every city in the United States has thousands of people who are handicapped by unhealthy housing. Senator Wagner is quoted as saying that there are over four hundred thousand people in the City of New York who live in buildings unfit for human habitation. I can very well believe that story when I am told that there are two hundred and fifty thousand bed rooms in New York City which have no windows. Many of these rooms have multiple occupancy and all of them are potentially pestilential.

The government-administered City of Washington is said to lead all of our cities in slum miseries, as also it leads in the statistics of morbidity.

Every one of these city dwellers must be included in the forty million, but none of them can claim to be outside the areas of free hospital and medical care.

EMERGENCY MEDICAL CARE

Every citizen of the City of New York may have emergency medical care free of cost at any moment of the day or night if he asks for it. We can well believe that they do not ask for it except when a need becomes acute through accidental or tragic illness, because many of them do not know how to ask for it.

Many small towns have hospital facilities available to people whose incomes are eight hundred dollars, or less, or who have no income at all, and where a generous medical profession cares for them free or at charges within their means. Many farmers fail to see eight hundred dollars in any year and are still able to pay for medical care.

No one can deny that there are communities which are poorly supplied with medical care as well as poorly fed and clothed and housed. No one can deny that eleven million people are unemployed and must have some form of government care. No one of the European systems of sickness insurance includes the unemployed because all insured people must be able to contribute toward this insurance. No one can deny that there are still a few sections of this country where the birth rate is still out of proportion to the supply of food or education.

No one can deny that there are local needs for hospital beds—while at the same time twenty per cent of all hospital beds are unoccupied.

SURVEY DISTORTED

It is, however, a distorted survey which tries to show that forty million people are failing to receive medical care while at the same time death rates are steadily falling. In New York City the statistics for 1939 are all showing new low records—last week the record was 8.1 per 1,000 estimated population and for the twenty-six elapsed weeks of 1939 it is 10.9. This is an accomplishment of American medicine.

Most people are so hospital conscious that sixteen people in the United States enter a hospital every minute day and night. A baby is born every fourteen seconds and half of these births occur in hospitals.

The fact that forty-seven per cent of all of our hospital beds are occupied by insane people can not all be charged to the failures of medical care, while much of it must be credited to social maladjustments. Surveys are needed more than ever. The Medical Society of the State of New Jersey has just finished a survey which might well serve as a model for every state society, to reveal the true conditions. It did not make estimates from samplings of the population, but reported every county and every township in the state.

This is not too difficult a task and must be done to discover all the facts of supply and distribution and need of medical care.

Every physician in the United States must

be enlisted in the search for the truth upon which to build the foundations for a master plan of medical service—such plans would be greatly accelerated by improved standards of living—improving living conditions is preventive medicine of the highest order. It is both a national and a local problem. The New York situation probably involves greater difficulty and cost than those found in other cities, but it can be cured by New York money and New York effort. It might be well if the national government would stage a demonstration in the District of Columbia and show the world how to do it.

I believe that every physician in the land should get behind slum clearance in the interest of better health for the American people, and demand action from all local and national authorities.

A CURE ALL

The propagandist proposes to cure all of our health deficiencies by imposing upon the American people some of the European systems of sickness insurance. Sickness insurance schemes abroad have not reduced morbidity or mortality rates or the loss of time of the worker due to sickness, but have reduced the physician to a very low place in the social scale. Foreign sickness insurance does not take care of the indigent. The indigent is outside the field of insurance and is the problem of the taxpayer.

We must remember our own troubles with compulsory workmen's compensation insurance. While this operation has been greatly improved, we must not forget the scandals which accompanied it and which still require constant preventive vigilance.

Although the propagandist admits that "health insurance is not a panacea", he says that "while it is not the ideal system" he thinks "that under the present social and economic conditions of the country, compulsory health insurance combined with extension of public health services is the best possible solution." The propagandist wobbles again when he advocates the Wagner Health Act and says that it neither carries nor advocates a health insurance scheme, but is ready to subsidize any state that develops a sound health program. This bill was introduced on February 28, 1939 and on March 29, 1939, just a month later, as was expected, the senator's son, Robert F. Wagner, Jr., an assemblyman, introduced a compulsory health insurance bill in the legislature of the State of New York in contemplation of enactment of the Federal measure. Cash benefits for disability and maternity care, he said, were included because the Federal bill makes provisions for aid to states which provide such assistance. The Wagner Health Act opens the door to potential graft which would drawf into insignificance all of the old pork barrel schemes ever experienced in this country. Dr. Gordon Heyd is quoted as saying, "It follows from the power inherent in the allocation of funds that the Federal Government would dominate the entire field of medicine and induce the states to submit plans for medical services in accordance with the rules and regulations of bureaucrats in Washington."

BUDGETING FOR SICKNESS

Very few people budget for anything except for rent and heat and light. Budgeting for sickness is now being inspired by many hospital and medical services plans which involve small daily payments. These plans now subscribed to by more than three million people are helpful to many people and indirectly to physicians, but the experience of the past year has demonstrated such serious abuses of privilege by greedy subscribers that financial collapse is threatening, unless contracts shall be definitely limited and rigidly enforced. Surpluses melt away under excessive hospitalization and the purposes of group service are defeated.

It seems inevitable that the insurance principle shall be involved in plans for medical service, and it seems wise that many trials be made in the various states, such as are now proceeding in California and New Jersey, be-

fore any national health plan shall be promoted.

The medical profession has developed the high quality of medical care that we now enjoy and earnestly desires to make it still better.

The propagandist asks whether the quality of medical care is really good in rural districts where he says many doctors still practice the horse and buggy medicine of fifty years ago. I would answer that query by saying that the country doctor has given a very good account of himself and the quality of care given to people of small or moderate means in rural districts is often of the highest type.

A doctor has to be good to succeed in the country because everyone knows his ability and the quality of his integrity. The only safe place for a crooked or incompetent doctor is in large cities where he may lose himself in the crowd.

THE GENERAL PRACTITIONER

The general practitioner is the back bone of medicine. In my opinion he would be ruined if he were subsidized. He does the best he can for each of his patients because that is the only way he knows to hold his practice, and he has an honest desire to restore his patients to functional usefulness. By and large the general practitioner is God-fearing —keeps the decalogue and cherishes his sworn obligations. I would like him to take a more serious interest in local political machinery and use his great influence in the betterment of the public health through the practice of preventive medicine. I would like him to realize how great is his potentiality in stimulating his patients and all of their contacts in the guidance and information of legislators who seldom understand the physician's viewpoint.

Every single physician in West Virginia should be personally interviewed by those who have attended this meeting. Every physician in this state should have a copy of the proposed Wagner Act and should be shown the danger to himself of its provisions. Every physician in this state should in turn advise all of his patients and acquaintances, at once, and ask their help with their state and national representatives who will soon be at home for the summer. Although this measure is unlikely to be acted upon at the present session, it is likely to appear next winter in amended form with an emotional appeal for the spending of millions for the promotion of public welfare—just another act in a drunken orgy of spending for prosperity, and handing over the practice of medicine to bureaus in Washington. Everyone should know that the estimated overhead of these bureaus in the administration of this Act will be six million dollars. You all must know that sending a dollar to Washington does not make it bigger. I am convinced that West Virginia will be better off by keeping her money at home, by developing the strength of her own health department and by supporting her physicians in the practice of better medicine for all her citizens.

NOT AGAINST PROGRESS

You must not take a negative position. Through the influence of systemitized adverse propaganda an impression has been created that the medical profession and especially the American Medical Association is against all progress, against any change in delivering medical care, and is acting in restraint of those who would try new plans.

People should be told that these aspersions are untrue, unfairly presented, and they should be told what American medicine really stands for.

One hundred years ago, in 1835, the vital statistics of Philadelphia revealed that the average expectation of life was twenty-one years.

Preventive medicine, carried on by doctors, and mostly by private practitioners in the United States has raised life expectancy to above sixty years. This has been accomplished largely through the salvage of children who otherwise would have died from the ravages of communicable diseases.

One hundred and thirteen thousand of the one hundred and twenty-five thousand actively practicing physicians of the United States are members of the American Medical Association. This is organized medicine.

PROTECTION OF CHILDREN

Organized medicine stands for the protection of children from all communicable diseases by scientific methods and for the care and improvement of deformed or crippled children; for the protection of children from accident and injury; for the protection of children from blindness; for the protection of children from exhaustion of child labor; for the care and protection of children from tuberculosis; for nutritional improvement. Organized medicine through private practitioners and through hospital practitioners has been steadily improving the growth and health of children for many years.

Organized medicine is intensely interested in race improvement and in the science of immunology. Organized medicine gets very little help from legislation for the promotion of compulsory vaccination against smallpox. Thousands of children evade vaccination. Thousands of cases of smallpox, all preventable, prevail at all times in this worst vaccinated of all civilized countries.

Organized medicine is constantly studying the problem of maternal mortality and recent statistics show that gains have been made in a nation-wide effort to salvage the future mothers of our children.

Organized medicine stands for prevention of communicable venereal diseases. It stands for public health, for sanitation, for good food and drug laws, for good housing, for good education.

It stands for better education of physicians to implement them for the practice of better medicine.

It stands for all the hospital beds that are needed and placed where they are needed. It is for all the state medicine that is needed for the care of the insane, the feeble-minded, the tuberculous, and the care of the indigents. It is for every effort that can be made by public health services for the eradication of syphilis. It is for preventive medicine of all kinds. It is for coordination of all national health services, except those of the army and navy, into one national health department headed by a secretary of health in the cabinet of the president.

It is against compulsory sickness insurance and is against the administration of medical practice by national bureaus.

It is for the preservation of the practice of medicine by the family physician as far as possible. The manners of medicine will change and will carry the old family doctor into history. I would like to pay a final tribute to his memory as he yields his place to the doctor of tomorrow.

THE FAMILY DOCTOR

The old family doctor has nearly finished his career. He has carried the tradition of true philanthropy into every personal relation. His devotion to his self-imposed obligations has kept him out of the public notice. He quietly answers the call of the sick without self-consciousness or self-pity. He carries on unnoticed unless like Doctor DaFoe he officiates at a quintuplet delivery or performs some dramatic service which is heralded in headlines. His skill is unknown beyond the immediate circle of his limited acquaintance. He never advertises. He holds no public office. He can not leave his patients long enough to go to the legislature. His place is at home trying to keep people well or curing the sick. His influence upon public affairs is small because he is too busy to become an active partisan. He does not make much of an income because he is generously appreciative of the financial difficulties of his patients. He is no longer a saddle bag doctor dispensing empiricisms. He no longer drives a characteristic gig. His high hat and his gold-headed cane are no longer symbolic. He has been well educated in the medicine of his period. His preceptorial training in the use of his powers of observation, in deduc-

tion, and in the high development of his own senses, often more than five of them, has yielded to the deeper searching into the mysteries of bacteriology and of internal secretions. He has learned the value of mechanical helps. Unless he has been practicing longer than fifty years he is not an old doctor at all. Within fifty years he has become a modern doctor because modern medicine is all measured within this last half century. The metamorphosis of the old family doctor has been so gradual that he has passed on to this new doctor without his knowing it, the age old interest in the poor and afflicted. Although the new doctor raised his right hand and promised to keep sacredly the Hippocratic oath, he only subconsciously knows the text of his affirmation. The spirit of Hippocrates, of Luke the beloved physician, of Harvey, of Jenner, of Lister, of Doctor Weellum McClure, of Osler and of Welch, has become the motivation of the DaFoes and thousands like him who never see their names in print.

HIPPOCRATIC CODE

The self-imposed two thousand year old Hippocratic code has become the very fibre of his impulse to carry on in high fidelity his consecration to the service of the sick. His cultural and technical training has covered almost thirty years of his life. At twenty-seven he received his diploma and thereafter served one or two years as an interne before starting to exercise his licensed right to begin the practice of medicine.

In the mad nineteen twenties the fashionable specialties lured many young doctors into those lucrative fields. In the depressive cycle of the nineteen thirties the family doctor has been much less embarrassed than the limited specialists whose practice in many instances disappeared because the patients could no longer pay his fees. In this period the family doctor has carried on with greater dignity than most bankers and lawyers and politicians, he has complained very little, and cared for his patients regardless of fee, in many cases living upon barter even in large cities. He and his people had shared hard times before and would do so again. In some regions he refused government aid or interference while in other regions he now regrets that he accepted government employment at low or never paid fees. In large cities his position is more difficult than in small towns or rural regions. The city hospitals are crowded, not only with the normally indigent, but also with people who formerly were able to pay for medical care. The doctor works in the hospitals and clinics and often meets his former patients there. The doctor is the only person in the city hospital who works without pay. Because he has always done so is not a good reason for continuing to do so. He realizes the necessity of a remedy for this situation now because of his financial distress. He works in the hospital for the pay of experience, for the pay of prestige, for the pay of promotion to places of prominence where he may receive the pay of larger responsibilities. He works to learn more about medicine in order to be qualified to learn more about medicine. He is retired for age at sixty-five while he is still a student and he cannot be made to regret it. The doctor is the servant of the sick and when he serves the really poor he considers it his priestly privilege. People who are unable or unwilling to pay for medical care, crowd free dispensaries to the doors. They are mostly uninterested in the personality of any doctor; their chief interest is in getting something for nothing and they submit to mass medicine because they must. One hundred and twenty patients in a medical clinic being served by four doctors in two hours means an average of four minutes for each interview and is very poor medicine. During the same time the same waiting space holds as many other people waiting for the nose and throat clinic whose doctors are six months behind the scheduled adenoid and tonsil operations and must work fast in their effort to catch up. There may also be a surgical clinic, or a

crowded children's clinic, or a skin clinic, or an asthma clinic, or cardiac clinic, every one of them crowded beyond comfortable limits. The clinic nurses and clerks work all day at high speed and are paid for their work. Doctors come and go on for two hour or longer periods, giving their services absolutely free. Some of them are specialists, but most of them are general practitioners. While many people are in need of medical service at low fees, and the cost to the city is small because the doctor is unpaid, many doctors would be glad to treat these people in their offices for nominal charges and give them better care than the hospital, because it would be individualized and unhurried. It would seem to be only fair that doctors as well as other people who work in tax-supported hospitals, or other government institutions, should be paid for their work. At present there is no money to pay them. Doctors of various kinds who now work for the government receive salaries so small that in ordinary times their positions are unattractive. The government being unable to balance its budget, the prospect of seeing the doctor paid by the state is very remote. The family doctor is aware that his status is changing daily and he desires to be one of the controlling factors in any new program. He justly resents the imposition upon him of any compulsory program by non-medical organizations. He believes that the American Bar Association would resent the imposition upon it of a program to regulate the practice of the family lawyer in much the same spirit.

ORGANIZATION NEEDED

The family doctor realizes the value of discussion of every phase of medical service and is greatly interested in the various plans now being put into experimental operation by the county medical societies seeing dangers in some of them and merit in others. He believes that the care of the sick is a medico-sociologic problem and that all doctors should be organized to attempt a solution. He believes that the old types of individualism will be limited to unhurried study in limited fields involving investigative science.

DANGERS OF STATE MEDICINE

He disbelieves in the practicability of extending the fields of state medicine, "socialized or public", because the burdens of the state already excessively overload the taxpayer. He sees state education in difficulty because it has grown too expensive for the community pocket. He sees thousands of teachers unpaid and out of work, he sees teacher training schools closed, he sees few new teachers appointed, he draws an analogy between state education and state medicine and believes that a similarly planned system of state operated medical service would be an unsufferable load no matter how honestly it might be attempted. He believes that in any such system expensive bureaucracy would be so inevitable that the doctor would become a poorly paid servant, that his ambition to pursue scientific study would be dulled, and that general medical service would sink to degrading levels. Such a system can not escape political manipulation. The legislature which votes the money for it will tie it up to political officers. It is claimed that public opinion will guide these officers toward wisdom and honesty, but we can not escape historical precedents which have always shown undue official absorption of the taxpayers contribution to any public operation. State medicine as we now have it is not attractive to the family doctor. He sees a few brilliant career men who have fought their way to the top, but he believes that most of the rank and file of the lower grades have been lured into the service by the prospect of soup bone security. The contemplation of the health officer does not inspire him with envy; he would like the salary but he very seldom desires to become a full time man in a poorly paid and poorly equipped political operation. The family doctor thinks of state medicine only in terms of salaried relief from financial worries. When the doctor is making a living he forgets it and turns again to the absorbing interest of

giving the best that is in him to his patient. He feels that the government doctors' viewpoint is colored by their salary and that from their safe vantage point they have lost an understanding of practical medical problems. He would like to see the health officer take an occasional sabbatical leave during which time he would be obligated to support himself by his own efforts in the private practice of medicine.

DOCTOR NOT A PARASITE

The family doctor is acutely aware that the art and the application of medicine has lagged far behind the science of medicine; he laments the uneven distribution of medical service even as he is saddened by the tales of inadequate housing and clothing and feeding of some people. The family doctor is in no sense a parasite living well upon the community. He is always willing to share common privation, but he is growing weary of being the only one to receive no appropriate consideration. Guaranteed incomes from any source would not guarantee careful personal interest. The financial position of the patient is always interesting as a factor in his well being, and without this interest the great majority of patients would receive superficial sympathy. The profit motive is not a large one in the doctor's life but the incentive to make a living is ever present. Paid research workers represent a very small portion of the medical profession, and the fact that they have not been demoralized by their salaries, often pitifully small, is not an impressive argument for subsidizing the whole medical profession. The doctor wants to be paid something for what he actually does and he wants to be free to spend his time and his energy in the scientific effort to pursue the solution of every medical problem.

Too many doctors, preventive medicine, and declining mortality and morbidity, as shown by current statistics, can not be denied as economic factors. Few doctors have acquired wealth from the practice of medicine. Thirty per cent are said to have gross incomes above ten thousand dollars, and thirty per cent are said to be failing to make their expenses. In the light of such a statement the value of the doctors contribution to the health of the nation is amazing.

The old family doctor of blessed memory is leaving the scene, but his successors are growing in effectiveness yearly and in increasing numbers are proudly calling themselves family physicians.

PARATHYROID DEFICIENCY

X-rays of the skulls of three persons with parathyroid deficiency revealed calcium deposits in the brain, L. McKendree Eaton, M.D., and Samuel F. Haines, M.D., Rochester, Minn., report in *The Journal of the American Medical Association* for August 26.

The parathyroids are four small glands situated near the thyroid gland in the neck. Their deficiency is characterized by mental deterioration, convulsions and an insufficient amount of blood calcium. This last factor is due to a sluggish functioning of these glands.

"The skulls of all patients with chronic parathyroid insufficiency should be x-rayed," the authors recommend. They also urge that whenever x-ray studies show calcium deposited in the brain in symmetrical areas, the possibility of parathyroid deficiency should be considered and other studies made to confirm or exclude this diagnosis.

Drs. Eaton and Haines believe that mental deterioration, convulsions and calcium deposits are all equally symptoms of parathyroid deficiency, and that none should be considered as a cause of the others.

"Since adequate treatment of parathyroid insufficiency (with calcium and cod liver oil) improves the mental condition of the patient and stops the convulsions without producing detectable x-ray changes in the calcium deposits," they explain, "we believe that the deposits themselves are not responsible for the mental deterioration or the convulsive phenomena."

The authors believe that this is the first time that calcium in the tissues of the brain in association with the deficiency has been observed in x-rays, although it is reported in the literature that these deposits have been observed in at least seven cases at postmortem examination.

FAILURE OF THE PERIPHERAL CIRCULATION*

By D. C. ASHTON, M. D., F. A. C. P.
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THAT the heart is not the principal offender in all varieties of circulatory failure has been realized more and more in the past few years, and although there are still unsolved questions, the concept of peripheral circulatory failure is becoming clearly defined. The investigations of Blalock, Harrison, Fishberg and many others, have clarified confusing problems in this field and have served to draw attention to certain phases of circulatory disturbance that were previously incorrectly interpreted.

MECHANISM OF PERIPHERAL FAILURE

In failure of the peripheral circulation, the heart does not receive sufficient blood from the afferent vascular bed, and in consequence of this is unable to furnish the arterial system with oxygenated blood in amounts compatible with normal tissue function. As a result tissue damage or necrosis occurs. The myocardium itself is not primarily responsible for this type of circulatory insufficiency, although as the syndrome progresses, the heart, in receiving too small a quantity of blood per unit of time, may be secondarily involved.

The pathogenetic factor of prime importance is that the effective volume of circulating blood is diminished below the level of normal physiologic needs. This deficiency may be due to lack of blood or stagnation and concentration of blood in certain venous or capillary channels particularly in the splanchic vessels and in the subpapillary plexus in the skin. Actual blood want occurs as the result of hemorrhage or of any of the various types of anemia. Hence insufficiency of the peripheral circulation is undoubtedly a part of the symptom complex seen in advanced Addisonian anemia, or terminal cachectic states where a pronounced reduction in blood cells is part of the disease process. Stagnation or concentration of blood may occur where there is profound shock, loss of fluid, hypochloremia or a sudden decrease in arterial and venous pressures. Precipitating causes of the above include a host of conditions such as trauma, diarrhea, vomiting, dehydration and toxemia. One, therefore, may encounter the phenomena of peripheral circulatory failure in patients with severe injuries, in postoperative states, hyperpyrexia or acute infections. In lobar pneumonia or septicemia, for instance, this type of circulatory insufficiency is almost always seen in the terminal stages.

PATHOLOGIC PHYSIOLOGY

Postmortem findings are variable and depend largely upon the primary disease entity. At times it is difficult to put the finger on any one pathologic process sufficiently severe to cause death, and it is equally hard to interpret findings with reference to the peripheral circulation. This is because the changes are largely physicochemical and are difficult to evaluate in terms of tissue pathology. Evidences of dehydration or anemia may be present. The heart is usually small and contains little or no blood. In anhydremic patients the vena cava is distended with dark viscid blood, and a similar condition exists in other splanchic vessels. Cloudy swelling and localized areas of necrosis may be widespread. Occasionally, as in fatal diabetic acidosis, one can not point definitely to any abnormality,

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although it does seem that fluid loss in the severe acidosis of diabetes would exert a profound influence in disturbing chemical relationships. The effects of continued anhydremia are far-reaching and disastrous. We have all seen patients in coma respond well to insulin as far as the reduction in hyperglycemia and ketosis is concerned, but in spite of encouraging reports from the laboratory, the patients became steadily worse and died. The rational assumption in such instances is that the persistence of dehydration over long periods of time had produced peripheral circulatory failure with ensuing irreparable tissue damage.

SYMPTOMS AND SIGNS

The clinical features of circulatory failure of the peripheral type are as a rule quite definite. The general appearance of the patient is suggestive of shock. He complains of weakness and although pain may be absent he seems restless and apprehensive. The skin is frequently clammy and is of an ashen color. True cyanosis as is seen in some types of congestive heart failure is usually not observed. A curious mottling of the skin, particularly in the dependent portions is often seen, but acrocyanosis is rare. The pulse is of small volume and rapid or thready. The heart tones are distant and muffled, and the slight difference in the character of the first and second sounds is suggestive of the embryocardia type of rhythm. Arterial and venous hypotension are the rule and the low venous pressure is in direct contrast to the finding in congestive heart failure where pressure in the venous system is usually increased. Orthopnea and dyspnea are not frequent findings and although the respirations may be rapid or of the "air hunger" type, the patient is quite comfortable in the recumbent position.

At times more than one type of failure may be found in the same patient. In cardiac infarction following occlusion of one of the coronary branches, both failure of the myocardium and peripheral vessels may be present simultaneously. This is especially true when the "shock" element in coronary occlusion is prominent. Furthermore, in advanced cardiac insufficiency from any etiologic basis, both types of circulatory insufficiency can contribute to the symptomatology and findings.

TREATMENT

Effective therapy should seek to restore the normal physical and chemical relationships in the tissue fluids, and inasmuch as lack of blood or concentration of blood are common manifestations, attempts should be made to remedy either abnormality at once. Irremediable tissue injury may occur unless fluid balance is regained or unless sufficient blood is supplied to combat cellular anoxemia.

The most useful agents are transfusions of blood if there is blood loss or severe anemia, and infusions of physiologic solutions, if there are signs of anhydremia or blood concentration. A simple laboratory test can be used to determine the concentration of the blood. If a graduated ten cubic centimeter tube is filled with oxalated blood and centrifuged for forty-five minutes, the relation of packed cells to whole blood can be determined. Normally the ratio is about forty-eight per cent. Readings definitely above or below this indicate concentration of or lack of blood respectively and serve as a guide to the treatment. The frequency of transfusions or infusions depend upon degrees of the disturbance, and cannot be stated in general terms. Drugs are of questionable value. Adrenalin and caffeine derivatives have been suggested as useful and strychnine has its advocates. Digitalis is generally believed not only to be of no value, but actually to be harmful. The prime indications for the use of this drug are not present and hence it should not be used. Oxygen in some instances seems to be of benefit, though its use generally may not be noticeably effective. The important idea is to restore fluid balance by combatting dehydration or blood want, thereby assisting the peripheral circulation in carrying on its normal functions.

SUMMARY

Failure of the peripheral circulation, although a definite entity, is frequently confused with cardiac insufficiency. Except in cases where combinations of the two types of failure are found, the diagnostic criteria are so clear that there should be no difficulty in recognizing the symptom complex. Blood loss and fluid imbalance are important motivating causes. Prompt and proper treatment are most essential.

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THE ENDOCRINE TREATMENT OF MENOPAUSAL SYMPTOMS*

By JOSEPH A. HEPP, M. D.**
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In the past few years reliable reports on the use of estrogen in the menopausal syndrome have appeared in the literature. Sevringhaus, Werner, Mazer, Frank, Goldberger and Solmon, Hawkinson and others, have presented cases in which treatment was successful. Some women pass through the climacteric with few symptoms, while others have rather mild symptoms which are easily controlled by simple sedatives as luminal and bromides. In a well conducted experiment recently reported by Pratt, it was concluded that as many patients obtained relief from phenobarbital, lactose or plain oil, as from estrogen.

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SYMPTOMS

Hot flashes and sweats are by far the most common symptoms encountered in the menopausal syndrome. These symptoms often appear before the cessation of ovulation and menstruation. The flashes are extremely frequent and are accompanied by profuse sweats, which awaken the patient at night. Hot flashes are increased by emotional stimuli. They last only a few minutes but may recur often enough to interfere with the patient's work. They occur as waves of hot sensations which may involve the entire body, but usually the head and neck are involved. These hot flashes are often accompanied by profuse perspiration, followed by chilly or cold sensations, so that the patient says she is cold even though she is "burning up."

Other symptoms encountered in our series were nervousness, excitability, fatigability and lassitude, depression, headaches, vertigo, vague and indefinite pains, and disturbed sleep.

Neurotic patients and patients having an unstable psychical constitution are greatly disturbed by these vasomotor phenomena. On the other hand, patients of a more stable constitution may have milder symptoms at infrequent intervals. As a rule, the more ap-

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prehensive, the more nervous and the more maladjusted the patient is before the menopause, the more severe the symptoms.

THERAPY

Frank, by his hormone studies, has shown that cessation of ovarian function is followed by persistent oversecretion of both follicle stimulating and also luteinizing gonadotropic factors of the pituitary. He also demonstrated that injection of estrogenic factor, in proper amounts, temporarily overcomes the excessive anterior lobe action with rapid disappearance of both factors from the blood and urine and there is also a definite decrease in vasomotor symptoms. The administration of estrogenic substances in the menopausal patient is certainly in keeping with present day physiologic knowledge.

Our observations are based on a series of 33 patients, of which five were physiological menopause, 24 surgical castrates and four radium castrates. Because hot flashes are such a constant symptom of the menopausal syndrome, no patients were included in this series who did not have this symptom. Over a period of 10 months these patients were treated in the gynecological endocrine clinic of the Elizabeth Steel Magee Hospital. The estrogenic preparation given to most of these patients was estromone, which was generously supplied to us by Dr. Gordon of Endo Products, Inc.

The highest number of hot flashes and sweats was encountered by a patient who had a hysterectomy and bilateral oophorectomy for extensive pelvic endometriosis. This patient was given 30,000 international units of estromone every other day for two weeks, after which she showed signs of improvement and now she is being treated with 10,000 international units once a week.

Another patient, who had radium castration, was given 20,000 units a week for three weeks, after which dosage was reduced to 10,000 units once a week and at the present time this patient is being treated satisfactorily by receiving 5,000 units once every three weeks. The number of hot flashes in this patient has decreased to 21 per week and she has been under treatment for nine and one-half months.

One patient in the physiologic menopause group had hypertension, the blood pressure before treatment being 185/95 and during treatment 180/112 and 202/100. Estrogenic substance caused a decrease in the hot flashes but it did not affect the hypertension.

Three patients in this series, who had radium castration, received relief from the hot flashes and sweats by using progynon B, emmenin, and theelin with emmenin. One of these patients said she was free of symptoms as long as she received emmenin, but as soon as she stopped the medication her symptoms returned. Sometimes it was necessary to use a combination of oral medication and intramuscular injections.

Although these patients are still under treatment, they are all improved and the number of hot flashes and sweats has decreased. These symptoms return and increase as soon as treatment is withheld.

PREPARATIONS USED

Emmenin (Ayerst). Source—human placenta. It contains ketohydroxyestrin and trihydroxyestrin. The liquid with a potency of 30 units per cc. was used.

Progynon D H (Schering). Source—partly synthetic, starting with estrone obtained from pregnancy urine. Contains estradiol.

Amniotin, oral (Squibb). Source—pregnant mare urine. Contains estrone.

Estromone (Endo). Source — pregnant mare urine. Hypodermic preparation used.

Progynon B (Schering). Source — partly synthetic starting with estrone obtained from pregnancy urine. Contains benzoic acid ester of estradiol.

Theelin (Parke Davis & Co.) Source—human pregnancy urine. Contains estrone.

COMMENT

In general, the symptoms of the artificial menopause were more severe than those of the physiologic menopause. Hot flashes were

present in every patient in this series. The frequency and duration of the flashes were recorded during the waking hours by the patients. The degree of relief from the flashes and sweats is the best single indicator of the amount of improvement obtained. For scientific reasons and for accuracy, it is unfortunate that the best criterion is subjective. Urine hormone tests, on these patients, showed an increased gonadotropic factor which disappeared under adequate estrogenic therapy.

CONCLUSIONS

Thirty-three menopausal patients were treated with oral and hypodermic estrogenic preparations.

Patients having an artificial menopause had a more stormy course than those in the physiologic menopause.

Effectiveness of therapy was judged by the patient's improvement with a decrease in the number of hot flashes and sweats.

Novak has said that organotherapy must be combined with intelligent management of the particular woman's entire menopausal syndrome. For example, in some women the fear of cancer may be in the background; in others, a fear of pregnancy or insanity. All these factors must be confidentially discussed and their correction must constitute a part of the management of such cases.

INTESTINAL OBSTRUCTION

By H. H. HAYNES, M. D., A. J. WEAVER, M. D. and J. F. LEMBRIGHT, M. D.
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(Case Report)

This is a report of a case of complete low small bowel obstruction treated by emptying the distended bowel at the time of operation by means of a stomach tube with suction. A case similarly treated could not be found in the literature at the author's disposal, except the small intestinal intubation technique advocated by Wangensteen and modified by Miller and Abbott.

Wangensteen, Rea, Smith and Schwyzer, in *Surgery, Gynecology and Obstetrics*, May, 1939, Vol. 68, No. 5, p. 867, under mortality of treatment state: "There would, as a matter of fact, be no mortality in simple obstructions, if adequate relief of distention could be obtained without peritoneal soiling. Witness the low mortality attending conservative decompression of acute simple obstruction. (Table I). If those patients in satisfactory physical condition needing operation could be relieved of their distention, maintaining at the same time, the sterility of the peritoneal cavity, the mortality would be minimal."

The Wangensteen method has been in use for several years and the benefits derived from it are well known. That severe shock, toxemia, and even death, from absorption of the toxic material, where operation has relieved an obstruction and the intestinal contents allowed to pass down into the healthy bowel below, is a well accepted fact. In an effort to prevent this and relieve the distention the bowel was emptied at operation.

An ordinary Ewald stomach tube with a "Y" connection attached to the proximal end was introduced into the stomach after the abdomen was opened. The tube was guided

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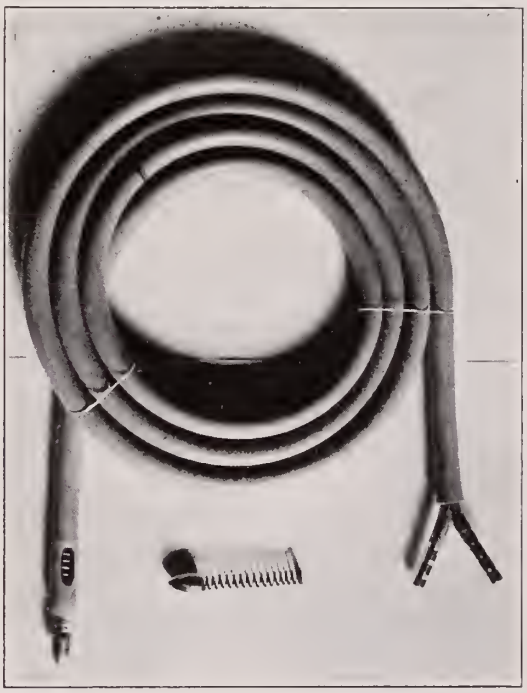
through the stomach, pylorus and duodenum by the operator, with hands in the abdomen. One end of the "Y" tube was connected to an ordinary suction apparatus and the other stem of the "Y" used to control the pressure.

Some interference was encountered by the intestinal mucosa obstructing the opening in the distal end of the tube which necessitated relieving the suction by opening one stem of the "Y." For this reason and to facilitate introduction into the intestine, the metal tipped coil spring was designed. (See cut).



Drainage tube consists of an Ewald stomach tube with a "Y" metal connection inserted in the proximal end of the tube (upper left). A metal tipped coiled spring is inserted into the distal end of the tube (upper right). The metal tipped spring is shown in the upper center. This metal tipped spring is used to prevent the intestinal mucosa from occluding the openings in the tube, and to facilitate passage of the tube through the intestinal lumen.

W. R. A., a white male, aged 65, was seen in consultation with Dr. E. A. Trinkle and Dr. R. M. Fisher at City Hospital, Weston, West Virginia. The history obtained is that an appendectomy was done by Dr. E. A. Trinkle thirty-five days previously for a chronic interval appendix. At the original operation there was free fluid in the peritoneal cavity and the lumen of the terminal third of the appendix contained pus. Convalescence was complicated by recurrent attacks of colicky, crampy, abdominal pain with nausea but no vomiting, relieved by enemata. Barium enema on the twenty-fourth postoperative day showed no obstruction. On the thirty-third postoperative day the abdomen became markedly distended, was tympanitic on percussion, and when palpated showed well marked intestinal peristaltic patterns. Enemata were ineffectual in producing either gas or feces. The patient felt nauseated and had vomited small quantities of yellowish fluid with a fecal odor. This continued for thirty-six hours.

Examination showed a thin, elderly man complaining of cramp-like abdominal pain. The abdomen showed a recent surgical scar in the low right rectus position, draining a small amount of pus. The abdomen was markedly distended, tympanitic on percussion, showing well marked intestinal patterns. Decompression with Wangensteen apparatus and parenteral fluids failed to relieve the symptoms so operation was advised. Under cyclopropane induction and ether anesthesia, the abdomen was opened through a mid-line incision. The small bowel was found markedly distended and injected. A stomach tube was passed through the mouth into the stomach and the tip guided through the pylorus and duodenum into the upper jejunum. Suction was applied and adjacent loops emptied of three quarts of liquid bowel contents and a large quantity of gas. "In his studies on intestinal localization Monks in 1903 demonstrated that almost the entire small intestine could be puckered, or guttered up, on a one foot (30 cm.) segment of a rod introduced into the lumen of the intestine." (Monks, G. H., *Intestinal Localization*, Tr. Am. S. A. 21: 412, 1903. Am. Surg. 38:574, 1903). Intestinal contents in the lower loops were stripped upward and removed by suction. This process was continued until the entire small bowel was emptied. Very gentle stripping should be used so as not to bring on the disadvantageous side reactions cited by Ochsner and Storck. (Storck, Ambrose H. and Ochsner, Alton: *Mechanical Decompression of the Intestine in Treatment of Ileus;* Arch. Surg. 33: 4, 670). The obstructing point was then found to be caused by a recent adhesion between the cecum and an adjacent loop of ileum. This was cut and tied with catgut. The abdomen was closed in layers without drainage.

Postoperative course was remarkably smooth except for abdominal distention on the third day, relieved by enema. The fifth postoperative day the patient was taking water and food by mouth. He had had normal spontaneous bowel movements.

POSTOPERATIVE VOMITING AND PHENOBARBITAL

By JOSEPH D. ROMINO, M. D.*
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THE use of phenobarbital in surgery has been of interest to many surgeons the past few years. Several papers have been published concerning its use principally as an adjunct to local and general anesthesia but in reviewing recent literature I find that no report has been published concerning its use to lessen postoperative nausea and vomiting.

Postoperative vomiting is a problem of great concern to the surgeon in the after care of his patient and many times the success or failure of the operation may hinge on the presence or absence of this condition. The exertion of straining drains heavily upon the patient's strength, and what is more important, if the vomiting persists, the loss of fluid and chlorides contributes to dehydration and hypochloremia.

MECHANISM OF VOMITING

Postoperative vomiting, as any type of vomiting, is primarily the result of stimuli reaching the center in the medulla. These stimuli may be either direct or indirect. Chemical substances such as apomorphine act directly whereas other stimuli may arise in almost any part of the body, but particularly from the pharynx and throat, from the gastric mucosa or the peritoneum.

There are two paths for the innervation of vomiting: the one through the vagi, the other by way of the splanchnics, the branches of the sympathetics to the spinal cord and from there to the quadrigemini.

MANY REMEDIES PROPOSED

A number of remedies have been proposed for the vomiting after anesthesia such as changing of the position of the patient, finely shaved ice in teaspoonful amounts, small amount of cold charged water, essence of peppermint, five to ten drops on a lump of sugar and adrenalin chloride (1:1000 solution), 10 minims in a little cold water and repeated in one hour if necessary. Most of these procedures, however, have met with little or no success.

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THE PLAN

Realizing that individual sensitivity is an important factor in the presence or absence of vomiting, and that an individual about to undergo an operation is under an increased nervous tension, it was assumed that, if phenobarbital were used preoperatively in moderately large doses, the entire nervous mechanism of vomiting would be depressed because of its prolonged action.

With this in mind, phenobarbital in varying doses was administered preoperatively to a series of one hundred cases and careful attention directed to the effect on postoperative vomiting.

CASES SELECTED

In this series of cases no attempt was made to choose any particular type of case, except to select adult patients who were hospitalized at least twelve hours before surgery.

THE MEDICATION

Each case received one-sixth or one-fourth grain of morphine sulphate and 1/150 grain of atropine sulphate hypodermically a half hour before surgery.

Phenobarbital was administered orally in either three, four and one-half, six, seven and one-half, and nine grain divided doses between 3:00 p. m. and 10:00 p. m., the day before operation.

Ether anesthesia was used in each case.

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RESULTS

The result obtained in the series of one hundred cases is shown in the two tables following:

TABLE I

Operation	Number in Series	Average
Laparotomies	40	40 minutes
Appendectomies	25	15 minutes
Herniotomies	21	25 minutes
Hysterectomies	9	45 minutes
Cholecystostomies	3	40 minutes
Gastrojejeunostomies	2	50 minutes

TABLE II

Phenobarbital Used	Total Cases	No Nausea or Vomiting	Nausea or Vomiting
3 grains	32	8	24
4½ grains	6	3	3
6 grains	24	18	6
7½ grains	24	21	3
9 grains	14	12	2

SUMMARY AND CONCLUSION

Phenobarbital in doses varying from three to nine grains was given the day before operation in a series of one hundred patients and careful attention paid to the amount of postoperative nausea and vomiting.

No abnormalities attributable to the drug were encountered before, during or after the operation. No patients were excessively depressed, violent or irrational.

I feel that phenobarbital before surgery should be administered the day before surgery as follows: Three grains at 3:00 p. m., three grains at 6:00 p. m., and three grains at 9:00 p. m. Variations in dosage, however, should depend on the weight, nervous tension, the length and severity of the operation and expected operative convalescence.

As shown by the tables, when large enough doses of phenobarbital were administered, the amount of nausea and vomiting was reduced to a minimum. In contrast, small doses of the drug have little or no effect.

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MONILIASIS OF THE EXTERNAL EAR CANAL*

By REUBEN F. SIMMS, M. D.
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MONILIASIS may be defined as an infection with any species of monilia; oidiomycosis, synonyms of monilia being oidia blastomyces, Parasaccharomyces, Cryptococcus and Oöspora. The affecting organism, monilia albicans, was first associated with the oral thrush by Langenbeck in 1839; in 1853 Robin first isolated the yeast-like organism and gave it the name Oidium albicans; in 1870 Rees called the organism Saccharomyces albicans, and in 1888 Hanson gave the name Monilia albicans, a genus of parasitic fungi belonging to the fungi imperfecti; Castellani's[1] work in 1912 renewed interest in the fungi.

The omnipresence of molds and fungi makes the care of plants a matter of constant vigilance on the part of the caretaker, for, if he is not careful and relaxes for just a little while, his whole crop may be spoiled. No part of the earth seems to be exempt from these plant-like organisms. Petri dishes exposed at great height from stratosphere balloons have picked up the spores. Culture plates exposed in trans-Atlantic flights have demonstrated the spores. From this, we can readily see that with the rapidity of modern transportation we may expect an ever increasing spread of a condition that was once supposed to have been confined to the warmer climates.

When man's interest in micro-organisms

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was first aroused, it was with the molds and fungi, but as the magnification of his microscope was increased and he discovered the smaller germs, his interest turned to that side of bacteriology for the reason that they caused diseases of more dramatic proportions and that these had a greater economic bearing on man. Now the interest of bacteriologist is again turning to the parasitic plant life, and the literature is showing an ever increasing number of contributions in all the medical specialties. Maher[2] reports that monilia is a very frequent finding in tuberculous patients; Bakst, Hazard and Foley[3] reported two cases of primary moniliasis of the lung and one case as secondary complication of tuberculosis; Hazel and Lamb[4] reported a case of generalized skin eruption with gastrointestinal involvement due to two different species of fungi; gastrointestinal tract with monilia albicans and the nails, hair and skin with microsporon; Karnaky[5] reported his work in monilia vaginitis; Traut, White and Hemphill[6] reported diabetes associated with moniliasis; Smith and Sano[7] reported moniliasis with meningeal involvement in an infant of twenty-two months, the recovered organism being highly pathogenic for rabbits; Haythorn, Robinson and Johnson[8] reported a case of moniliasis associated with an early Hodgkin's disease; Connor[9] recovered monilia from a case of osteomyelitis; MacFarlan[10] reported moniliasis of the ear and throat.

ESPTEIN'S CONCLUSIONS

Esptein[11] from a study of a group of normal infants, concluded that 54 per cent of infants from two to six weeks of age, 46.5 per cent of children from six weeks to one year and 38.5 per cent from one year to six years, harbored Monilia albicans.

Tanner, Lampert and Lampert[12] obtained yeast-like fungi in culture in 10 per cent of 1,002 students without recent history of sore throats or any upper respiratory infections; Haler found monilia in throat culture of 20 per cent of a group of normal children, 14 per cent of 1,000 normal individuals harbored monilia albicans, seven per cent in both throat and mouth, 3.1 per cent from mouth only and 3.9 per cent from the throat only. Benham and Hopkins[13] in 100 normal young adults did not demonstrate the monilia albicans from the skin, but believed that under the proper condition the fungi could be pathogenic. There are those who believe that the fungus was the cause of the skin disease; others believe that the fungus is a saprophyte and at times finds the skin a favorable soil. Greenbaum and Klauder[14] state, "Yeasts which are found normally on the skin may under certain conditions become pathogenic and cause a superficial infection." It is true that when the fungi are found in the plant world, they are usually on the dead or dying although in certain cases the young and old of a plant species may be nearly exterminated as has happened with the "chestnut blight."

TREATMENT

The literature on monilia infections of the ear is very sparse. I was able to find only one reference to a specific case in the current literature, that being a report by MacFarlan[10] and his case was not described in detail. Textbooks on eye, ear, nose and throat diseases do not mention moniliasis. Treatment, according to MacFarlan consists of:

1. Local cleanliness with simple measures.
2. Care of dental condition, as causes of recurrence may be found in teeth and tonsils.
3. Cutting down sugar intake, especially in diabetics.
4. Quartz lamp therapy.
5. Vitamins and liver therapy when indicated by the signs and symptoms.
6. Immunization may help.
7. X-ray is favored by numbers of workers. However, this agent should be given in only small doses.
8. The use of iodides which may be given locally, orally or intravenously. The local use is in the form of mercuric iodide in alcohol. In other cases, the use of the dyes, eosin and carbol fuschin in the canal are the only things that will at times relieve the itch-

ing. Phenol is used with considerable local value in ointments or lotions. Cauterants may be used, such as chromic, lactic and trichloracetic acid. Silver nitrate should not be used.

CASE REPORT

Mrs. B. C., age 43, a housewife, reported to me in January, 1937, complaining of severe pain in the left ear that had been getting progressively worse for the preceding two days; the pain radiated to the mastoid region. There had been an intense itching for two days preceding the pain. Her past history was irrelevant except for her left ear. As a child of twelve, she had had an otitis media and the drum had burst at that time. She said that her illness was a rather long, drawn out one. Since that time, she has had a drainage of greater or less amounts and periodic attacks of pain and discomfort in her left ear. Also, she says that she has had constant tenderness in the region of the mastoid. I have seen her in several of these attacks and diagnose her case as a chronic otitis media and probably chronic mastoiditis. I have not been able to secure an x-ray. The patient volunteered the information that the pain in this attack was nearer the surface than her previous attacks of pain.

Examination revealed a well developed and nourished white woman in apparent pain. Her temperature was 99.6, pulse 90, and respiration 24. Physical examination was negative except for the ear. There was a slight amount of swelling anteriorly and a marked tenderness over the mastoid. Examination of the canal revealed two small chalk white mold-like growths, on the posterior wall of the canal. One was about 0.5 cc. in circumference and the other a little smaller. There was an old perforation of the drum, oval in shape, 1.5 by one mm. in diameter and the drum was of a dull pearl gray appearance. The underlying tissue was quite edematous. When the growth was wiped away an area of superficial ulceration was found under each patch of fungi. There was no discharge from the middle ear. The patient was given a one per cent solution of mercuric iodide in fifty per cent alcohol and instructed to use this solution every four hours. A specimen of the growth was collected and sent to Dr. F. W. Shaw of the Department of Bacteriology of the Medical College of Virginia, who reported the fungus as monilia albicans. When seen three days later, the ulcerated areas were healing and the fungus could not be demonstrated.

One week later the ulcerated area had healed. Subsequent cultures were negative.

It is possible that the periodic drainage from the ear had so devitalized the skin of the canal that the monilia was able to gain foothold. The early clearing up of this case and the failure to culture the fungi at subsequent times rules out the involvement of the middle ear or mastoid with the monilia albicans. Iodides were not used internally in this case as the infection appeared to be local and only of a superficial nature.

CONCLUSIONS

1. Monilia albicans is a pathogenic organism.
2. We should consider plant-like growths in the ear as well as other parts of the body.
3. Iodide and local hygienic treatment is all the treatment necessary if the case has not advanced too far.

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THE TREATMENT OF ARTIFICIAL MENOPAUSE*

By RUSSEL KESSEL, M. D., F. A. C. S.
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THE absence of menstruation after the age of fifty is a normal incident in the average woman's life, but, for an increasing number of women, artificial interruption of the menstrual function is necessitated long in advance. Whether the change is natural, or induced by surgery or radiation, a considerable number suffer from symptoms of varying degree and duration. Some are merely bothered to a trifling extent while others endure actual misery. The latter experience is more frequent with artificial menopause.

In the past, women who have sought relief from their complaints at the time of the menopause, have often failed to secure satisfactory relief. Some have encountered indifference on the part of their physicians; many have been treated without benefit, or have even felt worse after irrational treatment. In certain cases undue emphasis on the nervous and emotional symptoms seems to have prolonged and intensified them. The use of a variety of expensive and almost worthless endocrine preparations has often brought discredit on medical treatment. There is, of course, need for careful evaluation of the complaints of each individual, and for the institution of rational and effective treatment when study and observation show that specific therapy is warranted.

The symptoms of the menopausal syndrome are due to a disturbance in the nervous system and to an alteration in metabolism, which may be classified in three groups:

1. Those due to neurocirculatory instability, hot flashes, excessive perspiration and palpitation.

2. Those related to nervous exhaustion, lethargy, sensations of discomfort in the head and elsewhere.

3. The psychic changes characterized by mental depression, fluctuating emotional reactions and a tendency to weep.

The symptoms may appear one or two years before there is any change in menstruation and may, sometimes, persist for more than ten years after menstruation has ceased. Excepting the hot flashes, there is no symptom which may not be presented by a nervous individual of either sex at any age. It is difficult to be sure that any symptoms are due to the menopause unless the hot flashes are also present. There are individuals who do not have them, but, in the absence of hot flashes, one should be cautious in attributing nervous symptoms to the climacteric. One should carefully study the situation, and compare the present complaints with the past experience of the individual. Even when hot flashes are present, one should not assume that other symptoms are necessarily due to the menopause, and must carefully study the individuality of the patient in order to avoid error.

There are no gross physical changes which are characteristic of the menopause. Senescence usually does not appear until long after the reproductive function has ceased. Even the changes in the genital system are inconspicuous. The secretions of the glands of the genital tract diminish and microscopic changes occur in the endometrium and in the vaginal mucosa. Biopsy of these tissues may show characteristic features. Examination of vag-

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*Read before the Logan County Medical Society, Logan, West Virginia, September 14, 1938. From Surgical Service "B", St. Francis Hospital, Charleston, West Virginia.

inal smears may also show these changes, and has been used by some to aid in verifying the diagnosis and to indicate objectively the response to treatment.

Functional changes occur in other endocrine glands as ovarian function fails. The hot flashes themselves have been attributed to a disturbance of adrenal activity. The pituitary is affected, and an increase in the secretion of prolan in the blood and urine may be demonstrated. The determination of the presence of excess prolan and absence of estrin represents another objective method of studying endocrine changes and should be employed more frequently. The futility of giving estrogenic substance to a patient who already has an abundance of estrin can be recognized and needless treatment avoided.

It is estimated that there is nothing to interfere with the normal routine of living in more than 85 per cent of cases of natural menopause. In the remaining 15 per cent, there may be need for consideration of treatment. The incidence of important symptoms is much higher after artificial menopause has been induced by castration, either through surgery or radiation, and under the latter circumstances the patient deserves more careful consideration. She should be informed about the symptoms which might be expected to occur a few weeks after the operation or radiation. Reassurance given in advance may spare her worry and apprehension later on. When, and if, symptoms appear, the patient can then seek aid in time to avoid any serious consequences.

PSYCHOTHERAPY

Whether the menopause is natural or artificial, treatment should be approached in the same way. In either case, treatment depends upon four things: psychotherapy, sedation, administration of estrogenic preparations orally, and their administration by injection. Psychotherapy is important in every case, and often it is all that is required. Firm reassurance, explanation of the recovery of vitality and stability to be expected in time, and recommendation in regard to relief of nervous strain, may help many women to tolerate their complaints without any other measure. Psychotherapy undoubtedly helps in many other cases, when neither physician or patient understands its action. The strong influence of suggestion is responsible for the credit often given to medication.

ENDOCRINE TREATMENT

Many clinical studies of the endocrine treatment of menopausal phenomena have been reported with conflicting conclusions as to its efficiency. Some reports would arouse skepticism were it not that there is sound evidence to show that there are actually physical changes when estrogenic material is given to patients. The efficacy of such treatment has been demonstrated by prominent and conservative critical observers, including Novak, Bland, Werner and others, who have demonstrated that even small doses of theelin in oil, given at three day intervals for a month not only relieve symptoms, but bring about changes in the endometrium and vaginal mucosa. In actual practice, the results of treatment must usually be judged simply by the relief from subjective complaints, but this is satisfactory insofar as relief from these complaints is all that is desired.

Specific endocrine therapy should be reserved for cases in which other measures fail to give relief. Fortunately, the temporary use of a sedative, the cheapest and simplest remedy, is generally helpful and, except in the worst cases, should usually be employed first where there is need for medication. One-half grain of phenobarbital given two or three times a day may help to make life bearable, even if it does not overcome the symptoms completely.

The estrogenic preparations now available are effective when used in adequate dosage, but the relatively high expense of the treatment makes it necessary to use careful discrimination in selecting the patients for whom it is definitely needed. One may expect relief from symptoms which are actually due

to the menopause, but one cannot expect to change the personality of a nervous, complaining individual whose symptoms preceded the menopause.

SPECIFIC THERAPY

When specific therapy is prescribed, it is important to watch the individual response closely in order to give a dose which can really be effective. Unfortunately, there are no definite rules to guide adjustment of the dosage. Furthermore, different units of measurement are used for the oral products of different companies; international units are generally used for products to be given by injection (one international unit represents the equivalent of 0.1 microgram of a standard preparation of estrin). The minimal dosage recommended for oral use is usually 500 to 2,000 international units, which represents two (2) tablets of Parke, Davis and Co.'s theelol. If this treatment is not effective within two or three weeks, injection treatment is usually advisable.

A larger dose of oral products may help, but it is likely to be relatively expensive. If the symptoms are overwhelming, injection treatment should be used at once. A series of six to eight injections of 10,000 international units, each given two or three times a week is employed at the start. Theelin in oil has been used exclusively in my series. Once the symptoms are checked, they may be kept under control as long as necessary, either by the continued injection method, on an average of ten days apart, or by the oral ingestion of 1,000 international units daily. Sometimes a course of treatment is followed by a long period of absence or at least relative relief from symptoms.

During the past four years I have treated a number of patients for the menopausal syndrome and have found that specific treatment has proven to be valuable. The following cases illustrate some of the important problems concerned with the treatment:

Case 1: Amenorrhea associated with symptoms simulating the menopause. The patient, age 37 years, came in for examination because of amenorrhea of six months' duration. She complained of nervousness, hot flashes and emotional instability, quite typical of the menopause. General physical examination was negative. Gynecological examination revealed no pathology of the pelvic organs. An accurate history recorded emotional instability for many years as well as a premature menopause in the mother and one sister. The urine showed the presence of estrin, graded three plus. The patient was assured that she was not in the menopause, after which the hot flashes ceased and menstruation returned. The strong influence of emotional and psychic factors was clearly shown by the experience of this patient. Had the urine not been examined and estrin found, a mistaken diagnosis could have been easily made.

Case 2: Symptoms of surgical menopause, relieved after oral treatment with estrogenic substance. The patient, age 25 years, complained of nervousness, despondence associated with crying spells and hot flashes. The symptoms appeared one and one-half years following an operation in which the uterus and both ovaries were removed. The symptoms were becoming more pronounced as time went on. She was given 2,000 units of theelol by mouth daily. Ten days later she was decidedly improved. She was less nervous and the crying spells were less frequent. The hot flashes occurred about four times a day. At the end of a month she was definitely better stabilized emotionally, crying spells had vanished and there were only a few hot flashes which occurred irregularly. The dosage was decreased to 500 units every second day for another month during which time she was practically devoid of symptoms. Treatment was discontinued and the patient advised to return in one month, which she did not do. Six months later a written communication stated that she had felt quite well and that it had not become necessary to continue medication.

Case 3: Symptoms of surgical menopause, relieved by injection of estrogenic substance. The patient, thirty years of age, was operated upon because of endometritis-dolorosa and the uterus, tubes and ovaries were removed. Two months later symptoms of the menopause began to appear. Nine months later she came for the relief of hot flashes which were occurring as often as fifteen times a day, and various nervous symptoms. A course of

seven injections of theelin in oil (6,000 international units, at intervals of two days) was given. Within ten days the hot flashes were reduced to about four a day, and at the end of two weeks they had completely stopped. She was decidedly better stabilized emotionally and felt very much better. During the next two months the patient received a total of 75,000 international units, during which time she was almost completely free of symptoms. Theelol in daily dosage of 500 units was then prescribed by mouth, and was continued for three months. During the time that oral treatment was in progress one or two hot flashes occurred daily, but the patient was otherwise free of complaints. It is believed that if she could have continued the injection form of treatment, she would have experienced no further difficulty.

Case 4: Severe symptoms of delayed menopause, relieved by injection of estrogenic substance. A woman, age fifty-two years, was being treated for pernicious anemia. She complained of severe menopausal symptoms for more than two years while under continuous observation. Various agents had been used to relieve the hot flashes, all of which had been unsuccessful. Phenobarbital had reduced nervous tension but the vasomotor waves continued. During the first month of treatment she received 85,000 international units of theelin. The hot flashes were reduced from around twenty per day to four or five. Her instability was lessened and her improvement was remarkable. Subsequently, injections of 7,000 international units were given at intervals of two to three weeks for six months and by this time the symptoms were subsiding. In this case the patient definitely observed improvement after she had received 30,000 units.

Case 5: Symptoms of radiation menopause relieved by injection of estrogenic substance. A woman, forty-one years of age, in June, 1938, was radiated with x-ray for the relief of functional uterine hemorrhage which had not been controlled by other treatment.

The question of artificial menopause was thoroughly discussed with her and she was advised to report for treatment when the symptoms first appeared. Eight weeks following radiation she came in complaining of nervousness and three or four hot flashes daily. Ten thousand international units of theelin were given every third day for four doses. After the second injection, she experienced no hot flashes and her nervousness was relieved after the fourth injection. Since then she has received 6,000 international units by injection every two weeks and has experienced no further difficulty.

The symptoms of the menopause deserve careful consideration particularly when induced by surgery or radiation. The use of estrogenic substances in selected cases yields results of definite benefit which is most gratifying to the patient, as well as to the physician. The writer has experienced a greater degree of success with the injection method of treatment and, if the patient's economic condition warrants, this is given preference over the oral route.

REEDUCATING MUSCLES

Reeducation of the muscles minimizes the tics and muscular twitching resulting from facial nerve paralysis, Edmund P. Fowler, Jr., M. D., New York, advises in *The Journal of the American Medical Association* for September 9.

Once these movements have become established there is no known method of relieving them—they can only be minimized.

"The patients who are annoyed by them must be trained to reduce their facial expressions," Dr. Fowler points out. "They can teach themselves not to blink so much. They can teach themselves to relax their facial muscles to a 'dead pan' expression. Making or maintaining a poker face requires definite muscular effort.

"Any movement, whether voluntary or involuntary, is likely to produce the very annoying twitch which they are trying to avoid," he continues. "They should therefore train themselves in front of a mirror to smile out of the paralyzed side of the mouth. If they can achieve an even smile, it is a triumph. They should try every means to avoid being self conscious when some one is looking directly at them. Occasionally it is necessary to avoid direct gaze.

"It has been found that some patients are benefited by keeping a pipe or cigarette holder in the paralyzed corner of the mouth. This reduces whatever deformity may be present and therefore the embarrassment of the patient. The less self conscious the patient becomes, the less his face moves."

SIGNS, SYMPTOMS AND TREATMENT OF NEURONITIS WITH REPORT OF CASES

By IRVING J. SPEAR, M. D.
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HOWARD D. MCINTYRE, *Ohio State Medical Journal*, Volume 33, p. 875, gives an unusually clear, brief, historical sketch of infective neuronitis. He states that Foster Kennedy, 1919, applied this term to a type of myeloradiculitis observed by him among the British troops. The term "neuronitis", quoting Gilpin, Moersch, and Kernohan, *Archives of Neurology and Psychiatry*, 1935, was first used by C. K. Mills, 1898, in a paper entitled the "Reclassification of Some Organic Diseases on the Basis of the Neurons." (*J. A. M. A.*, Vol. 31, 1898). Dr. Mills did not use this term, however, to describe a particular neurological entity.

Previous to this time Sir John Rose Bradford, in collaboration with E. F. Bashford and J. A. Wilson, used the term "Acute Infective Polyneuritis" to describe this illness. William Osler, in his "Principles and Practice of Medicine", 1892, page 777, is usually credited with the first description of this disease under the head of "Acute Febrile Polyneuritis." In 1868, Pierson, as quoted by A. Laurans, "Theses De Paris", discussed an illness which could well be considered belonging to this group. In 1917 Gordon Holmes used Osler's terminology of "Acute Infective Polyneuritis" describing twelve cases observed during the war with two postmortem studies. Since this time many papers describing cases, postmortem findings, experimental transmission of the disease have appeared in medical literature.

H. D. McIntyre in the *Journal of Medicine*, Vol. 17, 1936-1937, quoted Taylor and McDonald as giving a comprehensive description of neuronitis and a complete bibliography of this disease up to the time of their publication in the *Archives of Neurology and Psychiatry*, Vol. 37, 1932. The disease is described under various terms: Acute febrile polyneuritis, infective neuronitis, meningo-encephalo-myelo-neuritis and polyradiculo-neuritis with albumino-cytologic dissociation. This term is used by Guillian because of the fact that the globulin in some cases was increased out of proportion to the number of cells. (This fact is confirmed by McIntyre.)

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There has been considerable discussion as to the appropriateness of the term "neuronitis." Adolph Meyer was rather critical of this term in his discussion of the paper read by Gilpin, Moersh and Kernohan at the sixty-first annual meeting of the American Neurological Association, Montreal, June, 1935, and referred to the difficulty of distinguishing the neurological degenerative changes in the central nervous system (avitaminosis) from the group as described by the essayists on the basis of their pathological findings. Israel Wechsler at the same time suggested the term as peripheral neuropathy as being more appropriate. It seems to me, after a careful consideration of the pathological changes in the central nervous system and the peripheral nerves as outlined by Bashford, Moersh and others, the clinical course of the illness, the distribution of the pathological changes, and the clinical manifestations, that the term "Acute Infectious Neuronitis" (low-grade inflammatory changes involving the entire neuron, the cell body and its processes) is more nearly a correct designation than polyneuritis or neuropathy, polyneuritis indicating involvement of the processes of the nerve cells and not of the cell body itself and neuro-

pathy being descriptive of degenerative changes that occur in nerve tissue as a result of exhaustion, abiotrophy, death, infection, etc.

Although extensive clinical material was available, I failed to recognize or there did not occur in the material observed by myself a single instance of this disease until 1932 when I saw and recognized a case in which the diagnosis was justified. This case occurred in an army engineer, on whom, after physical survey, a diagnosis of muscular dystrophy had been made. Since that time there have come under my observation at least six cases. The clinical history of five of them will be briefly discussed.

In general the disease may be described as developing in three stages: first, a mild febrile illness in which the temperature may range from 99 to 102 or 103 degrees, the individual complaining of headache, occasional gastrointestinal disturbances, especially of soreness and rheumatic pain in various parts of the body, numbness and paresthesias in the extremities, and in general such symptoms as we are accustomed to seeing in a mild grippal or upper respiratory infection. It is just such a picture frequently occurring early in almost any infective disease; at this time it is not possible to make a correct diagnosis, and in view of the rarity of this affection, one would hardly be expected to suspect its possible presence. Following this a latent period may occur but in some there occurs almost immediately the characteristic motor manifestations of the disease. The latent period may last from a few days to five or six weeks or longer. Bradford, Bashford and Wilson in their original article in the *Quarterly Journal of Medicine*, October, 1918 and January, 1919, state the longest period of incubation in their experimental cases was six weeks. The second state, occurring after an interval of a few days to four to six weeks, is known as the paralytic stage. The onset of this may be sudden or subacute. The individual, while walking, may fall and be unable to rise or, while sitting, may be unable to arise from the chair. Paralysis or weakness may be of gradual onset. It is in this stage that there occurs the marked motor and sensory manifestations. Usually the weakness or paralysis affects first the lower extremities, involving the muscles of the thighs, hips, and the trunk. Often the anterior muscles of the abdomen and trunk are affected. It may be at the same time that the upper extremities are affected, and here the shoulder and arm groups of muscles are prominently involved. Very commonly, probably in three-fourths of the cases, the facial muscles become involved. Often the muscles of deglutition are affected, and the patient has great difficulty in swallowing solid food. The muscles of mastication and the tongue are rarely, if ever, affected. The sixth nerve is reported as having been involved but the third and fourth have not. Upon investigation in many cases, optic neuritis has been described as being present.

The characteristic distribution is that the proximal muscles of the extremities are involved, and not the muscles of the forearms, hands, legs, or toes. The paralysis is of the flaccid type. There occurs no fibrillary tremors. The muscles as a whole are not usually involved but rather such groups of muscles as would suggest segmental distribution. There is usually wasting of the muscles but in those cases that I have observed, no such extreme wasting as one sees in poliomyelitis was present.

REFLEXES

The knee, tendo Achillis, biceps, triceps, and periosteal-radial are usually lost. In those cases which I have observed, in spite of the fact that the muscle power was fairly well retained in the distal portions of the extremities, the tendo Achillis reflexes and the periosteal-radial reflexes were either lost or markedly decreased. On the other hand, the superficial reflexes, the abdominals, the cremasterics, and the plantar reflexes are usually retained or very slightly affected.

SENSATIONS

In all the observed cases there was some disturbance of sensation. In no case was there complete loss of sensation. There was present, however, hypoesthesia in scattered areas on the trunk and extremities corresponding more or less accurately to segmental distribution.

Herpes was not observed, but paresthesias, numbness, and tingling, soreness and pain were prominent early symptoms, and here again the distribution of the sensory irritative phenomena was segmental rather than peripheral. After a varying interval, at times when the individual showed permanent residual motor manifestations, the sensory disturbances, with the exception of some numbness, practically disappeared. The electrical reactions of the affected muscles showed definite variation from normal. The affected muscles usually reacted to strong faradic stimulation but in some areas, particularly where the shoulder group or the abdominal muscles were definitely involved, there was present the reaction of degeneration. In none of the cases observed was there any disturbance of bowel or bladder control. Difficulty in swallowing and weakness of facial muscles were also observed. In case number one, which was seen almost one year after its onset, a spinal puncture was not done. In cases numbered two, three and four, spinal puncture showed very definite increase in the globulin and protein content without increase in the cell count. This finding is recognized as being important in differentiating this disease from other types of acute febrile illnesses with motor involvement such as poliomyelitis, encephalo-myelitis, postdiphtheritic polyneuritis, and vitamin deficiency disease with neurological manifestations. In the fifth case these findings were not present in the spinal fluid and this experience is similar to that of Moersh and others. The other laboratory tests showed that the urine was usually negative, gastric contents negative, the examination of the blood may show a slight increase in the white cell count and a slight increase in the polys. Generally, one may say that the laboratory tests, with the exception of an increase in the globulin and protein content of the spinal fluid without increase in the cell count, were not helpful in arriving at a conclusion.

H. D. McIntyre, in the *Journal of Medicine*, Vol. 17, 1936-1937, pp. 124-125, as a result of study of his own cases and the literature, states that from a clinical standpoint the cases which occur may be described from the standpoint of their severity as falling into four groups:

1. A group of cases with rapid onset and rapid recovery, usually with some evidence of seventh nerve paralysis.

2. A group of cases with steady downward progress, with early death.

3. A group of cases with long drawn out course, with incomplete recovery.

4. A group of cases with a long drawn out course, terminating in death, usually from heart failure or respiratory paralysis.

Considered from the pathological viewpoint, there is a surprising agreement in the findings. All are agreed on changes in the motor cells in the spinal cord, changes in the nerve roots and posterior ganglion cells, with peripheral changes playing a secondary rôle. This latter fact serves to differentiate the disease from the more common forms of peripheral neuritis. In spinal fluid examination albumino-cytologic dissociation is certainly the rule. This serves also to differentiate the disease from the various types of polyneuritis. Casamajor summarizes his pathological studies as follows:

1. Hyperemia and edema of the pia-arachnoid.

2. No changes in blood vessels, no perivascular infiltration such as seen in poliomyelitis.

3. Glial proliferation in the central gray matter of the cord and in the posterior root ganglia.

4. Hyperemia of the central gray matter with slight primary and secondary degeneration in the anterior horn cells.

5. Marked primary and secondary degeneration of the anterior root fibres just as they emerge from the pia.

6. Beginning degeneration of the posterior nerve roots just outside the pia.

7. Marked degeneration of the posterior root ganglion cells with neurophagy.

DIFFERENTIAL DIAGNOSIS

(1) Postdiphtheritic polyneuritis. It is perfectly possible for the initial infection of diphtheria to be overlooked; in all cases of suspected infective neuronitis, careful investigation should be made for a possible pharyngeal or other focus of diphtheritic infection, and also examination of the spinal fluid and the distribution of the paralysis.

(2) Toxic Neuritis: The distribution of the symptoms almost certainly enables one to differentiate this disease from neuronitis. It is the peripheral portions of the extremities and not the proximal portions that are involved. The sensory disturbances are always in the distribution of a nerve or nerves. In fact, the motor and sensory symptoms in neuronitis correspond largely to spinal cord segmental distribution and the motor and sensory phenomena in neuritis always correspond to nerve distribution. The course of the illness and the uncovering of the etiological factor assists in the early differentiating of these two diseases.

(3) Disseminated malignancy of the brain and spinal cord. Here careful search for the primary source of malignancy should be made. The distribution of the paralysis and the spinal fluid examination are important, because it is in the spinal fluid in cord tumor with block that one may also get a marked albumino-cytologic dissociation.

(4) Disseminated encephalomyelitis; the presence of pyramidal tract signs, together with an increase of cells in the spinal fluid are important.

(5) Poliomyelitis; the course of the illness, the rapid atrophy, the history, the absence of persistent sensory disturbances and the distribution of the paralysis should make the differential diagnosis very simple.

(6) Cerebrospinal vascular disease: The course of the illness, the physical examination, and the distribution of the symptoms should make the differentiation comparatively simple.

COMPLICATIONS

In the acute stage, practically the only complication reported is the involvement of the respiratory tract, occasioned by the involvement of the respiratory muscles and the diaphragm, resulting in pulmonary congestion. Some cases have been reported as terminating fatally within a few days as a result of pulmonary involvement, and respiratory failure.

In the cases reported by Moersh and others it would appear that women are affected more frequently than men. In the small series of cases observed by me, there were three women and three men. The age of onset was reported as occurring from early life to late life, although most cases appeared to have occurred in the third and fourth decade. The cases observed by me were all over 40 years of age.

PROGNOSIS

Prognosis as to life varies. Some observers report a rather high mortality rate, but in general one can expect a mortality rate of 25 per cent. The degree of recovery varies from almost complete recovery to very marked disability. Two of the cases observed by me made complete recoveries and are carrying on their activities as well now as they did before they were ill. Three of the cases are markedly handicapped by weakness of the shoulder group of muscles. Improvement can be expected for at least two years, after the onset of the illness.

TREATMENT

Treatment depends largely upon the time at which the patient is seen. If one is fortunate enough to see these cases early, that is,

as early as the disease can be recognized, and if one agrees that the illness is the evidence of a virus infection, then the treatment that is indicated is: absolute rest in bed, moderate fluid intake, diet rich in vitamin B' and G, and the use of vitamins B' and G parenterally. In those cases which I treated in the acute stage, I used salicylates, acetylsalicylic acid in large doses, and atropine sulphate, with encouraging response. This treatment was continued for at least two or three weeks. Then the next step was the clearing up of all possible foci of infection. After the third week, physiotherapy, passive movement, and electrical stimulation of the affected muscles was given. Also strychnia sulphate was given and the use of vitamin B' and G continued.

CASE HISTORIES

A male, age 47, army engineer, whose complaint was difficulty in walking due to weakness of hip muscles, difficulty in arising from a sitting or recumbent position, difficulty in swallowing and weakness of the shoulder muscles. The family and past history are entirely negative. There is no definite history of preceding febrile illness although when seen by Dr. Barker about a year after the onset of the illness he gave Dr. Barker a history of having had fever a few days before the onset of the illness. Following this, there was a rapid development of weakness of the shoulder group of muscles, weakness of the hip muscles, weakness of the trunk muscles, difficulty in swallowing, weakness of the face and numbness in both hands. The onset of the present illness was sometime in January, 1931. From January until June, 1931, there was a progressive weakness involving the shoulders, (patient had difficulty in raising his arms and he noticed this first when he would bounce his children in the air), and also involving the hips, (he noticed this first when he wanted to cross his legs and could not do so without putting one over the other with his hands). At no time was he thoroughly incapacitated. With the onset of his illness he had stiffness in the arms and legs. In the spring of 1931 he had a number of infections on the trunk and extremities. His tonsils were apparently infected. In June, 1931, he entered the Walter Reed Hospital where a careful examination was made and the tonsils were removed. From January to June, 1931, there was a gradual increase of weakness in the proximal portions of his upper and lower extremities. From June, 1931, the difficulty in swallowing improved, the weakness about the face improved, and he noticed that there was not the same tendency for his jaw to drop. The weakness about the body increased until about October, 1931, since which time it remained stationary. The general physical examination was essentially negative, he being a very well developed and well nourished individual weighing about 150 pounds. The neurological examination showed the gait was unsteady. He had difficulty in raising his feet from the ground, walking with a swinging gait because he had difficulty in flexing the thighs on the trunk. When seated he was unable to rise without assistance. He had difficulty in turning in bed, was unable to raise the arms at the shoulders, marked weakness of the flexors of the forearms was present, and there was weakness of the trunk muscles. All of the affected muscles showed considerable wasting. The muscles of the forearm and hand and the muscles of the legs and feet showed practically normal power. Reflexes: The plantar and cremasteric reflexes were normal. The abdominals were active on both sides. The tendo Achillis were present on both sides. The knee reflexes, biceps, and triceps were practically absent, but on several occasions I thought that I obtained a knee reflex or a triceps reflex. Sensory: There was a history of paresthesias. Cranial nerves were practically negative with the exception of weakness of the face muscles.

Electrical Reactions: All the affected muscles reacted to either strong faradic or interrupted galvanic current. The shoulder group and pectorals showed reaction of degeneration.

Treatment: The patient remained under treatment for two years. There was some slight improvement. He regained reasonably good use of lower and upper extremities but there persistently remained weakness and wasting of the shoulder group and the hip group of muscles. The patient was last seen about a year ago, (1937) when his general condition was excellent. He was able to get about reasonably well and there had been no progression of the disability. The diagnostic problem in this case was whether we were dealing with a muscular dystrophy, an acute inflammatory disease involving the central and peripheral nervous system, the peripheral form of epidemic encephalitis, acute infectious polyneuritis, or possibly chronic poliomyelitis. The course, the widespread distribution,

the loss of the triceps, biceps and knee reflexes, the mode of onset, the history of facial involvement, the electrical reactions, and the distribution of the paralysis justified the diagnosis of neuronitis (acute infectious polyneuritis.)

Male, age 60, married. Family history and past history are of no special importance. About three weeks before admission he had a febrile illness which he thought was grippe associated with considerable pain in back. Then there developed numbness and tingling in both arms and legs. On April 15, 1933, he was seen by a physician because of fever, pains and aches in the back and extremities. The doctor reported that at that time there was no weakness but he had severe pains in his back. He was able to walk. On about April 20, there developed weakness in the lower extremities. On the twenty-fifth day of April, his right lower extremity gave way. Since that time he could not get out of bed. No disturbance of bladder control had been present. He was admitted on May 2, complaining of weakness in both lower extremities (legs and thighs), weakness of fingers, and weakened grip of both hands. Examination at that time showed biceps reflex present on both sides, but the triceps and supinator longus reflexes were not obtained. The tendo Achillis and knee reflexes were not obtained, but plantar stimulation gave rise to normal plantar flexion. General sensory examination was negative. The patient complained of numbness and tingling in the upper and lower extremities. There was slight weakness in the lower right side of the face. No cervical rigidity was present. The neurological notes show that there was weakness and wasting of the thigh and hip group of muscles, and weakness of the upper extremities. Laboratory tests, which included examination of urine, blood, gastrointestinal series, Wassermann of the blood and spinal fluid, were all negative with the exception that there was a marked decrease in the globulin content of the spinal fluid with three cells. The second examination of the spinal fluid, made several days later, still showed globulin four plus by the Pandy test, and cell count one WBC. Spinal fluid sugar was 63 mgms. The course in the hospital was afebrile. At the end of 11 days he returned home slightly improved. The diagnosis was neuronitis (acute infectious polyneuritis.) The patient gradually improved, was under treatment for about one year and in April, 1937, returned to work.

Male, aged 42, merchant, had a history of repeated attacks of gastrointestinal disease. This man was allergic to flowers and wool. In October, 1932, he had influenza with high fever and was ill for a number of weeks. By March, 1933, he was supposed to have made a good recovery from this chronic upper respiratory infection, but in the latter part of that month he first noticed tingling in the toes and fingers. This gradually extended up his extremities and by April 5, he states this tingling and numbness reached his waist and shoulders. He also noticed a peculiar sensation in his head and back. Sometime in that same month, he also noticed weakness in both lower extremities; in April, numbness in the tongue and jaw and difficulty in swallowing. There was no bowel or bladder disturbance. Pains were present in both shoulders; there were neuralgic pains in both sides of the lowar jaw, and marked weakness was noted about the hip muscles and shoulders. When asked how long he had this distribution of weakness he stated "Two weeks after the cough left me." For a week he had been unable to get around without assistance. His general physical examination was essentially negative. The neurological examination showed that with assistance, the patient had a shuffling gait, marked weakness of all extremities, marked weakness of the posterior thigh muscles, anterior thigh muscles, great weakness of all the muscles that flex and extend the thigh on the trunk, moderate weakness in the grip of both hands, moderate weakness of the flexors and extensors of the wrist, weakness of all the muscles on the anterior and posterior aspects of both arms, and of both shoulder groups. The muscle tone in the proximal portions of the extremities was not quite as good as in the distal portions. Plantar stimulation gave rise to normal plantar flexion; the cremasterics were present on the left, but not on the right, and the abdominals were not obtained. Sensory: Sensation was grossly not disturbed; paresthesias, of both upper and lower extremities were present. Special examination of throat and nose showed some slight weakness of deglutition. All x-ray examinations were negative. Electrical Reactions: All muscles of the shoulders and lower extremities reacted to faradic stimulation; laboratory tests were all negative with the exception of the spinal fluid, which showed globulin four plus; cell count one WBC. Course in the hospital was afebrile. The patient returned to his home. This patient gradually improved and in the latter part

of July, 1933, I received a letter from the patient's daughter telling me that he was well on the road to recovery.

Female, age 45, widow; in February, 1936, complained of a grippal attack; fever, upper respiratory infection, and generally felt badly. This lasted several days and in February, about the fourteenth, stated she felt so bad as to ask her employer to permit her to go to the drug store to get some medicine for her cold. While on her way to the drug store she fell to the ground. She thinks she slipped, got up, walked to the hotel, had difficulty in walking up the steps, says she felt peculiar all over, worked for two days longer, but had difficulty in using her right upper extremity and had numbness in both hands, great difficulty in walking and for several days felt very weak and numb. She was able, however, to get around, went to see various physicians and x-ray examinations were made. The latter part of March, six weeks after the onset of the illness, her condition became such that she could not use her upper extremities and she had to be waited on. She could not stand because her legs gave way under her, and she could not turn from side to side. There was no disturbance of bowel or bladder control. The general physical examination was entirely negative. At the time of examination her gait was described as "she walks like a mechanical doll." Motor Functions: Marked weakness of grip of both hands, almost complete paralysis of muscles of both arms; anterior and posterior thigh muscles and hip muscles almost completely paralyzed. Muscle power of legs extremely good. Very little muscle wasting. Superficial Reflexes: Abdominals not obtained; plantar stimulation gave rise to normal flexion. Knee, biceps, triceps, and periosteal radial were absent. There was practically no disturbance of sensory functions. Numbness was present in both upper and lower extremities. The right pupil was slightly larger than the left. All muscles reacted to faradic stimulation, but those of the anterior thigh did not react as well as those of the legs. Two days later the patient was seen again, when she complained of stiffness in the shoulders, back of neck and lower extremities. The patient was admitted to the University Hospital, April 25, 1936 and discharged August 12, 1936. On the twenty-sixth day of April, a little more than two weeks after the original examination, the pupils were equal. At no time was it noticed that there was difficulty in swallowing or any weakness of the facial muscles. Laboratory Tests: Urine examination, blood chemistry and gastric analysis were all negative. Blood Wassermann negative. Spinal Fluid: Normal pressure, eight cells per cm. Pandy's test two plus, globulin three plus, spinal fluid sugar 61 mgs., spinal fluid protein 163 mgms., fluid Wassermann negative. All possible foci of infection such as tonsils and teeth received proper attention and the patient left the hospital markedly improved. She was readmitted to the University Hospital a year later for reexamination at which time she was able to get around fairly well, but still showed marked weakness of shoulders, hip and thigh muscles, and complained of paresthesias and tingling of fingers. The deep reflexes were not obtained, but the superficial reflexes were normal. Spinal fluid at this time showed cell count five WBC, globulin a very faint trace, spinal fluid protein 60 mgms., showing that since the acute attack there had been a marked decrease in the globulin content of the spinal fluid. At this time, two years after the attack, the patient was able to get around fairly well, attended to her housework and with the exception of some clumsiness in walking, and weakness of the shoulders, was as well as she had been before she was taken ill.

Female, age 57, gave a history that 10 weeks before she had had an attack of lumbago. About five or six weeks later, that is five weeks from the time I first examined her, she noticed some soreness in the muscles through her shoulders and arms, also numbness like pins and needles in both her upper extremities. She complained that her hands would get all numb, she had terrible headache and pain in the back of her neck, and a feeling of stiffness in the neck. Somewhat later she noticed a great deal of weakness in her shoulders and hips and on May 21, 1938, because of the weakness in her hips, when she attempted to go downstairs her lower extremities gave way under her and she fell, bruising her head and body. She thought that at the time she had soreness in her shoulders and that she also had some fever. Her principal complaints were weakness in her upper and lower extremities. She said she could not raise her arms away from her body, and that she had great difficulty in raising her lower extremities at the hips. Neurological Examination: Patient was confined to bed, unable to walk due to the weakness of both lower extremities. Motor

Functions: Almost complete paralysis of both shoulder groups; marked weakness of the anterior and posterior arm muscles. Weakness of the sternocleidomastoid muscles on both sides. Posterior forearm muscles were weak, but the anterior forearm muscles had comparatively good strength. The grip of both hands was comparatively good. The small muscles of the hands were not affected. Very marked weakness of anterior and posterior thigh muscles and flexors and extensors of thigh was present in both right and left lower extremities. The muscles of both legs had comparatively good strength. All the affected muscles showed lack of tonicity. Reflexes: The deep reflexes in both upper extremities were not obtained. The tendo Achillis reflex on the right was present, but not on the left. The plantar reflexes were active on both sides. Abdominal reflexes were not obtained. Bowel and bladder control was not disturbed. Sensory Functions: Tactile, pain and muscle sense stimuli were well perceived in the upper and lower extremities and trunk. Paresthesias: Numbness, tingling and burning sensations were complained of in both upper and both lower extremities. Coordination: Such coordination tests as could be tested were well carried out, but due to muscle weakness the Romberg sign and heel-knee tests could not be performed. The finger-nose test was fairly well performed. Laboratory examinations of blood, including Wassermann, urine, spinal fluid, were all negative. Spinal fluid examination on May 23, 1938, showed fluid clear, initial pressure 95 mm. water, Queckenstedt normal, cell count two per cm., globulin faint trace, Wassermann negative, mastic test negative, protein 39 mgms. per 100 cc. Spinal fluid examination on September 13, 1938, showed the fluid clear, initial pressure 110 mms., slow rise and fall of pressure on each side, globulin faint trace, cell count two WBC, sugar 72, protein 65, Wassermann 0—0—0—0, mastic 1—2—1—1—0—0—0—0—0. Diagnosis: Neuronitis. Treatment: Administration of aspirin or salicylates grains 80 per day, and atropin 1/150 gr. hypodermically q. six hours or four times a day. During the course of illness she developed marked respiratory embarrassment and there occurred paralysis of the intercostal muscles and it was necessary to keep the patient in an oxygen tent for five days. There was present marked shortness of breath from the least exertion. While in the hospital all deep reflexes disappeared; the abdominals were not obtained and the plantars became lost also. At no time was there disturbance of bowel or bladder control. The sensory phenomena largely disappeared but there still remained weakness of shoulders, the muscles of the forearms and arms, hips, thighs and legs. There developed trophic disturbances about the joints.

At the time of this writing, five months after the onset of the illness, the patient is still confined to bed. She is unable to stand or walk, unable to feed herself, is mentally fair, has numbness of the hands, marked weakness of trunk muscles, occasional respiratory embarrassment, no difficulty in swallowing, and the facial weakness has disappeared.

CONCLUSION

The purpose of presenting this paper was to call attention to the fact that there is occurring with an increasing degree of frequency a type of illness which has a more or less acute onset; in early stage a diagnosis is not possible, but shortly thereafter occur a group of motor and sensory symptoms which should make possible the correct diagnosis. These findings are weakness and paralysis of the proximal portions of the extremities, involvement of muscles of the trunk, facial weakness, difficulty in swallowing, without marked atrophy and without fibrillary tremors, rapid loss of the deep reflexes and retention of the superficial reflexes with no bowel or bladder involvement. The sensory phenomena are irritative in character the distribution of both the sensory and motor phenomena corresponding to spinal segmental distribution and not to peripheral or cerebral nerves. The laboratory tests are practically negative with the exception of the spinal fluid, which in the vast majority of cases, and certainly in the acute stages shows albumino-cytologic dissociation with marked increase in the globulin content without a corresponding increase in the cell count. If these cases are recognized early, put at absolute rest, and treated as one treats acute infections, also using parenterally vitamin B and G, a better prognosis is to be expected both as to life and limitation of disability.

CYCLOPROPANE ANESTHESIA

By SISTER M. BAPTISTA GARVEY, R. N., S. S. J.
Charleston, West Virginia

MEMBERS of both the medical and the dental professions of West Virginia have requested of me a report on the use of cyclopropane as an anesthetic. My success in the use of cyclopropane has prompted me, for the help and encouragement of those still doubting the efficiency of this anesthetic, to relate a few of my experiences.

There is no doubt that cyclopropane is the anesthetic of the future. Of all the advances in anesthesia since its discovery nearly one hundred years ago, none has been of greater value than the introduction of cyclopropane.

Since 1928 my entire time has been devoted to the study and administration of anesthesia, but I have been using cyclopropane only since 1936. At the beginning of that year we purchased a Montreal Model Foregger machine for the purpose of giving this new gas a thorough trial. This machine, I believe, is perfect in every detail and is still in use. I am using Squibb's cyclopropane, carbon dioxide absorption technique and I find Foregger's circle filter very satisfactory.

METHOD OF PROCEDURE

The bag is filled about half full of oxygen and cyclopropane added at the rate of 500 to 600 cc. a minute until anesthesia is established at the required depth. Then oxygen and cyclopropane need be added only to meet metabolic requirements. Many times a patient may be carried along on the mixture in the bag very satisfactorily until the closure of the peritoneum when a little fresh cyclopropane added will give sufficient relaxation to afford easy closure.

RELAXATION

In most cases, regardless of the weight of the patient, I have been able to produce adequate relaxation without the addition of ether. Only about five per cent of cases received a very small amount of ether, even strong laboring men with traumatic injuries. Cyclopropane is safe, pleasant, yet powerful and controllable. The induction is entirely different from other gases. The pulse and respiration are the best guides. In cyclopropane the same relaxation can be obtained as with ether and without the unpleasantness of ether. In this statement I do not wish to insinuate that ether no longer has a place in the field of anesthesia—not at all. We still feel quite safe in using it, especially with children. One of these cases shall be referred to later.

THE AUTHOR

Sister M. Baptista Garvey, R. N., S. S. J. Served with Mercy Hospital and St. Johns Hospital, Pittsburgh. Anesthetist, Saint Francis Hospital, Charleston.

EXPLOSIVENESS

Cyclopropane, like all other anesthestic gases, is explosive in certain proportions with oxygen and air, but the danger is relatively slight, since the gas is always used in a closed circuit. However, adequate precautions against static should be maintained, such as keeping the machine clean, having all parts working easily to avoid danger of friction, changing the soda-lime frequently, and keeping fresh water in the glass jar. I do not hesitate to permit use of the cautery for the cervix or hemorrhoidectomy. I always place a wet towel around the cone and face and observe the rule not to use a cautery above the umbilicus with any inhalation anesthetic. If this be insisted upon, a catastrophe will be avoided. One should not forget that the method of induction of cyclopropane is entirely different from other gases; those accustomed to giving nitrous oxide must not at any time let the mind wander from the patient.

EXPENSE

It is to be seriously doubted if it is very much or any more expensive than the other gasses, but I am not able to give figures as to cost. In our hospitals patients are brought in from many rural districts and most of these patients are in a condition that will not await financial investigation. Therefore, we administer to them whichever anesthetic is best for the condition at that time.

There have been no toxic effects, no anesthetic pneumonias following operation. One reason for this is the fact that patients do not perspire and there is no loss of body fluid. Patients are returned to their rooms with very little shock, even after long operative procedures. Abdominal distention and gas pains are much lessened compared with the effect of other anesthetics. The reaction is accompanied with very little nausea and the mind is quite clear. There is no confusion experienced, although a slumber often follows the first reacting. Cyclopropane is an excellent anesthetic for thyroid work because of the efficiency and low toxicity.

Following are some of the complicating diseases among the cases, in which I have administered cyclopropane: Hypothyroidism, severe cardiac disease with asthma, arteriosclerosis, tuberculosis, jaundice and diabetes. In my experience there have been no deaths attributed to the effect of the anesthetic and no toxic results observed.

I have administered one thousand and twenty (1,020) cyclopropane anesthetics for a wide variety of surgical cases, some of which were: appendectomies, hysterectomies, herniorraphies, cesarean sections, nephrectomies, stomach and gall-bladder operations, laminectomies, bone grafts, mastoidectomies, thyroidectomies, enucleations, a variety of orthopedic and plastic operations, oral surgery, and forceps deliveries. My youngest patient was a child six months old for the correction of club feet; my oldest was ninety-two for amputation of a diabetic gangrenous foot. Both patients made a nice recovery.

In cyclopropane we have an anesthetic that tuberculous patients tolerate better than any of the other gases. In West Virginia there is a splendid opportunity to compare cases. Often while being treated for tuberculosis, an acute appendix or tuberculous peritonitis develops, necessitating the opening of the abdomen. Then arises a very important question of anesthesia. I have in mind a woman, thirty-eight years of age, brought to the obstetrical department in one of our hospitals for delivery of her first child. She had a pulse of 130, coughed almost continuously and was unable to lie down. The doctor in charge of the case asked me to give her a nitrous oxide anesthesic for delivery. This I hesitated to do, knowing that tuberculous patients do not tolerate nitrous oxide well because of the lack of sufficient oxygen to obtain relaxation. The doctor, however, insisted, so I gave enough of the gas to convince him the patient would not survive if continued. Then he consented to allow me to give cyclopropane and in three minutes the patient had relaxed sufficiently for forceps delivery. After continuing oxygen for a few moments the patient was placed in Fowler's position in bed, reacted without coughing and in ten days was discharged. She is living today with her baby one year old. There are several such cases, but in order to make my report brief, only this one is cited.

USE OF CYCLOPROPANE

To those who use anesthetics, may I recommend that a fair trial be given cyclopropane? In the administration of this gas the anesthetist should be patient and optimistic. He should study his patient before the anesthetic is administered and visit him afterward. Often we find patients who are difficult to relax, thereby discommoding the surgeon. The gas, cyclopropane, so easy to administer and so pleasant to patients, does away with such disquietude and a real joy is experienced when a few days after the operation, the patient expresses his praise and sur-

prise in having had such a wonderful sleep without an unpleasant moment to recall.

In conclusion may I say that I am pleased with the results I have obtained with cyclopropane in the number of anesthetics I have administered. My earnest hope is that others will have the same success as I have experienced, that they will give this gas a fair trial and report their results. It will be an encouragement and help to keep before us the interesting comment of Doctor Griffith, of Montreal, who says: "My conception of anesthesia with the older gases is that we administer the gas, plus enough oxygen to keep the patient alive and in good condition. With cyclopropane, on the other hand, we administer oxygen with just enough of the anesthetic gas to keep the patient asleep."

THE MANAGEMENT OF CONGESTIVE HEART FAILURE*

By A. SPATES BRADY, Jr., M. D.
Charleston, West Virginia

BEFORE approaching too closely the subject under consideration it might be profitable to examine some matters of definition which are fundamental to the proper understanding of heart failure. In this connection it is essential that the physician be equipped with a knowledge of the difference between heart disease and heart failure. Heart disease should bring to mind the degenerative and inflammatory changes that occur in the heart secondary to tissue injury, brought about by any one of several specific etiological agents. On the other hand, heart failure is just what the term implies; namely, the inability of the heart adequately to care for the circulatory demands of the body. Until it is realized that heart failure is the functional sequel of heart disease and not merely a synonym we may expect disappointment in treatment. Perhaps the failure of many physicians to recognize the essential difference between heart disease and heart failure lies in the emphasis placed on pathological anatomy in our teaching institutions. It is granted that the heart may be enlarged, the valves distorted, and many interesting murmurs heard; that these findings are important from the standpoint of prognosis is not denied, but that they form a reasonable basis for therapy is not admitted. As clinicians we should direct our thoughts to what the heart will do and not what an interesting pathological specimen it would make. We still treat patients and not organs.

THE AUTHOR

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Of what importance is the proper management of congestive heart failure? In answer to this question you are referred to the mortality tables for this state, in which the reports of the past year indicate that over three thousand individuals died of heart disease. Even if it is granted that information gathered from this source is inaccurate in so far as diagnosis is concerned, nevertheless death from diseases of the heart stands in the initial position on the list. Of this figure it can be stated that the manner of death in these cases of heart disease was chiefly that of congestive heart failure. When we consider the disability caused by failure and the death as a result of failure it will be seen that this problem is responsible for an appreciable economic loss in any community, a loss directly attributable to the crippled heart.

I have been reliably informed that all papers delivered on matters of medical and other interest should have a purpose. It might be well to state here that the purpose of this paper is to present some of the thera-

*Read before the Logan County Medical Society, September 10, 1938.

peutic principles essential to the proper management of congestive heart failure and some personal observations on the reasons for therapeutic impotence in some cases. The immediate objectives of the physician differ considerably from those of the surgeon. The latter, when he has successfully removed a diseased appendix, may quite properly state that he has cured the patient of his disease. The satisfaction he derives from such curative therapy is not experienced by the physician treating congestive heart failure since the patient presents not only signs and symptoms of diminished cardiac reserve but also irreparable structural damage. If these individuals can be returned to a comfortable, even though not productive, life by reasonable management the attempt is worth a trial. We cannot hope to cure organic heart disease, but we can offer the patient in congestive heart failure something more substantial than the bed and the bottle.

REST MOST VALUABLE

The first consideration in the management of congestive heart failure is rest, which is the most valuable and least respected of the therapeutic agents at our disposal. It is frequently prescribed in an offhand and somewhat apologetic manner. Absolute emotional, mental and physical rest is the basis upon which all treatment of failure is built. The place for the patient is in bed 24 hours a day. The advice "take it easy" when given to a dyspneic executive with swollen ankles may elevate the physician to the status of a fairly intelligent fellow in the opinion of the executive but it will not restore his cardiac reserve. By the same token that the patient is unable to carry on his usual physical activities he is also unable to cope with the sympathetic friends who sit at the bedside hour on end. The degree to which the physician is able to control his patient and the environment will determine the success or failure of treatment. Failure to assign the proper value to rest is probably the greatest single factor in failure to control the decompensated heart. No drug has yet been discovered that will take its place.

Sleep is an important adjunct to absolute rest in the treatment of congestive heart failure. Indeed, the inability to sleep may be the only subjective complaint the patient offers although he is obviously dyspneic. Many valuable hours in the initial treatment of cardiac failure have been wasted in attempting to secure sleep for patients through the use of various barbituric acid derivatives. In my hands they have all been uniformly barren of results although the advertisements were very convincing. Now morphine is used in adequate dosage for the first three nights. So far I have no addicts to my credit and the patient does sleep.

ADEQUATE DIET

Diet in the treatment of congestive heart failure is a subject which seems to have a peculiar fascination for the therapeutist. The physician who reads and runs sometimes finds it difficult to remember whether or not the last authority suggested an all meat diet or a no meat diet or possibly no diet at all. Probably it would be less confusing if it were remembered that the diet should be adequate for the caloric demands of the patient. A glass of milk four times daily with cracked ice for thirst and no other food or fluids for a period of three days often initiates diuresis. After the third day the patient can be fed a soft solid diet and sodium chloride removed from the food both in the kitchen and on the tray.

One of the most important considerations in the problem of congestive heart failure is fluid intake and output. It is one of the purposes of treatment to render the patient edema free. This should be done by restricting the fluid intake to 1500 cc. daily every day until the fluid output exceeds the fluid intake; the restriction should then be continued as long as the patient appears to be losing body weight. The writer has never obtained much satisfaction in giving a patient in congestive heart failure large doses of a saline purgative daily for the purpose of

rendering him edema free. Usually this procedure means that a diarrhea must be treated in addition to the failure.

Digitalis needs no introduction. Its proper use, however, might be brought to mind. As for the drug itself, the writer holds no brief for any particular commercial preparation of the digitalis bodies. He can not become even mildly enthusiastic over the fact that some preparations are fat free and that this unique distinction makes them less nauseating. I believe that any potent digitalis preparation is nauseating if enough is given. The powdered leaf in capsules or pills is stable, active and easy to take.

USE OF DIGITALIS

In administering digitalis to a patient only two things must be kept in mind. The first is that the physician must place in the body of the patient enough digitalis to produce digitalis effect (the digitalization dose) and the second is that the physician must prescribe daily thereafter enough digitalis to continue the effect and maintain the level of utilizable digitalis in the body (the maintenance dose). If this conception of dosage is uppermost in the mind of the physician at all times he will not be amazed at the failure of recovery in those patients who are taking fifteen minums of the tincture daily from that prescription they have had on the bathroom shelf since last year. The digitalization dose for the average individual, when given rapidly, has been determined as fifteen cat units. The drug is usually given in the following manner: An initial dose of seven cat units followed in not less than eight hours by a dose of five cat units; two cat units are given every eight hours thereafter until a therapeutic or mild toxic effect is produced. The drug is then discontinued for twenty-four hours after which the patient is put on a dose of two cat units daily. This last dose is the maintenance dose. At the risk of being considered old fashioned, the writer feels that the subcutaneous or intramuscular administration of the digitalis bodies is rarely necessary. Both methods are painful and absorption is no more rapid or complete. It is granted that these routes may be used when the patient is unconscious or vomiting, but the results are no more gratifying than when rectal instillation is used.

The term digitalis effect has been mentioned. It might be well to explain the meaning of this term. Digitalis acts on the heart and the result of this action is digitalis effect. In congestive heart failure this effect is manifest in two ways. The direct result of the action of the drug is an improvement in the dynamics of circulation. This is characterized by a decrease in dyspnea, orthopnea and edema; a decrease in the size of the liver and the removal of fluid from the body cavities and tissues with increased urinary output. The second effect of digitalis is improved coronary circulation.

It is frequently stated that the patient is unable to take digitalis or that digitalis has no beneficial effect. With the exception of terminal cases this is rarely true. There are several reasons why the patient is unsuccessfully digitalized. First, they may be given too little digitalis. This may be because the dose ordered is too small either during digitalization or maintenance or because the dose ordered is large enough to digitalize the patient slowly, whereas the dose the patient actually takes is less than the body eliminates daily. Patients may also be given too little digitalis because they are unable to retain the drug due to congestion of the stomach and liver. In this instance it should be given by rectum or intravenously. Secondly, the patient is given too much digitalis. This is the result of failing to differentiate between the period of digitalization and the period of maintenance. Thirdly, patients are unsuccessfully digitalized because they are given the drug for conditions that simulate congestive heart failure. This may occur in bronchial asthma, cirrhosis of the liver and pleurisy with effusion.

As episodes of congestive heart failure in-

crease in frequency and severity over a period of time it becomes increasingly difficult to render the patient edema free through the use of digitalis and dietary restrictions alone. The residual edema which persists despite adequate digitalization often responds to various diuretic drugs. Of these drugs the mercurials are the most effective and of the mercurials, salyrgen has been the most useful in my hands. This should be given in a dosage of two cubic centimeters every four days either intravenously or deep in the gluteal musculature. Best results have been obtained by combining this with a daily dose of ammonium nitrate by mouth. When effective, diuresis may be expected beginning four hours after the injection and persisting for twenty-four hours. If no diuresis follows the total dosage of six cubic centimeters it is probably wise to discontinue the medication.

The writer regrets that he has been unable to instruct and entertain you with the charts, graphs and computations found in the papers of more able essayists. The material upon which this paper is founded is from a short, educational and embarrassing experience in treating patients in congestive heart failure as well as the thoughts of other writers on the subject. It is for this latter reason that no bibliography is attached hereto since we must respect the laws on plagiarism. I am also indebted to the Saint Francis Hospital in Charleston for the use of records from the medical service and to you for your patience and courtesy. In summary, briefly, give the patient in congestive heart failure that same consideration that sufferers from more dramatic diseases receive.

TESTING SYSTEM FOR APPROVING SYPHILIS SEROLOGY LABORATORIES

By A. E. McCLUE, M. D.
Charleston, West Virginia

When West Virginia's "premarital" law was passed in February, 1939, requiring physical and serological examination before marriage, probably no one, private practitioner, laboratorian, or public health official, realized the full scope of the problems which had to be worked out immediately. The most extensive problem has been to make available throughout the state as many private laboratories as possible whose syphilis serological work can be sponsored and approved by the State Health Department.

This meant developing and putting into immediate practice a workable method for determining which laboratories in the state were already doing dependable work, as well as a method to assist all private laboratories to attain high standards of serologic performance.

The testing of a laboratory to see if its work is carried out correctly and efficiently is at best very time-consuming; the difficulties of the initial problem in West Virginia were enhanced by the prohibitively short time (90 days) between passage and enforcement dates of West Virginia laws, by the unexpectedly large number of laboratories which applied for approval, and by the fact that the State Hygienic Laboratory had to carry on this work without additional funds and without additions to a personnel already operating under a sustained maximum load.

Studies[1 2 3] conducted annually for the past six years throughout the United States have indicated that certain syphilis serological tests are dependable while others are not; that even the accepted standard tests are not always dependable, and in fact are very misleading

THE AUTHOR

Arthur E. McClue, M. D., graduate University of Louisville School of Medicine. State Health Commissioner of West Virginia.

unless they are carried out in scrupulous accordance with present standard methods. These studies have also shown that the efficiency of a laboratory conducting a given test can really be determined only by constant interlaboratory checking (i. e., by comparing its results on a representative number of specimens collected from clinically known donors with the results of another laboratory whose efficiency has already been demonstrated).

SUMMARY OF STUDIES

An excellent short summary of these studies is given by the editor of the *Journal of the American Medical Association*,[4] who emphasizes also that the clinician should possess certain minimum information relative to the above points concerning the laboratory he employs, "without which knowledge he cannot expect to treat his syphilitic patients either scientifically or satisfactorily." This information the Department of Health must have before it can sponsor the work of private laboratories in West Virginia, and it is this information which the department seeks to make available to the practicing physicians of the state by furnishing them a list of private laboratories which have been approved.

In 1938 a conference of private and public laboratory directors, syphilologists and serologists from the entire United States was held in Hot Springs, Arkansas, under the auspices of the American Committee on the Evaluation of Serodiagnostic Tests for Syphilis; in attendance were representatives of the American Medical Association, the American Society of Clinical Pathologists, and the other major societies representing branches of medical science. The proceedings of the conference are given in "The Serodiagnosis of Syphilis."[5] Methods of approval of private laboratories in the various states were discussed. Minimum standards for approval were recommended by the American Committee, and were unanimously adopted by the entire conference. It is perhaps well to quote here significant parts from these standards:

"1. The state laboratory or other laboratory designated to serve in a control capacity should have attained a satisfactory standard of efficiency in the performance of serodiagnostic tests for syphilis.

"2. It is desirable that studies to determine the efficiency of serologic test procedures should follow in general the procedure adopted in the studies carried out by the (American) Committee for the Evaluation of Serodiagnostic Tests for Syphilis.

"3. To give an estimate of the performance of any test in terms of specificity and sensitivity, the number of specimens from specially selected non-syphilitic donors should not be less than 100 and the number of specimens from specially selected syphilitic donors also should not be less than 100.

"12. To qualify as satisfactory a laboratory should attain a sensitivity rating (percentage true positive results) not more than 10 per cent below that of the state control laboratory, and a specificity rating not less than 99 per cent (i. e., not more than one per cent false positive results)."

WEST VIRGINIA METHOD

The West Virginia Health Department made a thorough study of the American standards, and also of the methods used in other states for testing and approving private laboratories; the methods finally adopted were composed of those points which were believed to be most practicable for West Virginia. The West Virginia methods and forms were submitted to the American Committee and to the West Virginia Public Health Council, and were approved.

It seemed advisable during the initial period of West Virginia's "premarital" law not to adhere too rigorously to the serological standards of the American Conference, but rather to work gradually toward them. All efforts toward improvement must be gradual to be most productive. Therefore, though the essential plan of testing laboratories in West Virginia is that prescribed by the American Conference, the present require-

ments of the department are much more lenient: only 50 to 60 test specimens, instead of 200, are submitted to each laboratory; a larger percentage of error in sensitivity (true positive results) has been allowed for approval. It has been arranged that the Venereal Disease Research Laboratory of New York serve with the West Virginia Hygienic Laboratory in examining each test specimen; thus, there are two control laboratories.

THIRTY-ONE APPROVED

More than four thousand test specimens have been sent out in connection with the testing of private laboratories. To date, sixty private laboratories have already been tested. Thirty-one of these have been approved. They are geographically distributed so that there are approved laboratories in or close to all areas of the state. The results of testing the last group of laboratories, which have just finished receiving their test specimens, will soon be declared; this will complete the testing of all private laboratories running standard tests whose applications were received prior to August 15. It will probably be necessary to defer the testing of further applicants until early in 1940, since it involves almost as much work to test one laboratory as to test a dozen.

The results of the tests so far well illustrate the difficulties of syphilis serology, and the divergent results often reported when the same specimen is examined by two or more different laboratories: a number of laboratories tested thus far have reported false positive results on 20 to 40 per cent of the known normal test specimens!

At the request of the State Health Department, a West Virginia Advisory Committee on Approval of Laboratories has just been appointed by the presidents of the West Virginia Medical Association and the Public Health Council. This committee has made the following recommendations:

1. That the method of testing and approval adopted by the State Health Department be continued.

2. That reports of all official laboratories of other state health departments in the United States be accepted.

3. That, except for the official laboratories of other state health departments, no laboratory outside West Virginia should be eligible for approval.

4. That, to be eligible for approval, a laboratory in West Virginia must:

(a) Complete the questionnaire and agreement forms adopted.

(b) Comply with the minimum requirements adopted, which specify the acceptable standard tests and methods.

(c) Maintain adequate apparatus and reagents for tests covered by application for approval.

(d) Send its application to the State Health Department two months prior to future yearly testing periods, of which notice will be given well in advance. (This is to allow the necessary advance preparations for testing, and because the State Health Department cannot continue to test laboratories whenever they apply throughout the year unless adequate additional funds are appropriated for this purpose alone.)

5. That "certificates of approval" cover a period of two years.

6. That American standards be not adhered to strictly in West Virginia as yet, but that "certificates of approval" be granted automatically to those laboratories which on test specimens attain a reasonable approximation to American standards on sensitivity, and no false positive results.

7. That "temporary certificates of approval" be issued to those laboratories which on test specimens attain sensitivity ratings approximating American standards, and no more than 10 per cent false positive results; such temporary certificates to have a life period of three months, and the laboratories holding them to be retested before the end of the three months' period.

The State Health Department's aim is to determine as rapidly as possible those labora-

tories in which the calibre of work justifies approval, and also to aid all other interested laboratories in improving their work to a level which can be approved. As a means of aiding interested laboratories, free consultation service on laboratory technique is offered by the State Hygienic Laboratory; private laboratory personnel are invited to visit the state's official laboratory for periods of one or two weeks' observation and instruction in standard serological methods. Such visits of course must be arranged in advance; in this connection it may be well to point out that the West Virginia Hygienic Laboratory has received recent annual ratings in the American evaluation studies which rank it among the first laboratories of the country in efficiency of the syphilis serological tests which it conducts.

Finally, it is obvious that no enterprise can thrive unless there is a demand for its services; this is just as true of private laboratories as of any other industry or profession. The State Health Department therefore urges that all physicians aid the healthy development of private laboratories in West Virginia by using the Hygienic Laboratory for syphilis serology only on indigent and public clinic patients, thus diverting such work on patients who are able to pay for it to the private laboratories of the state.

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REVEALS CHILD'S ADOPTION

Adopted children should be informed of their adoption as early as they are able to understand it, *The Journal of the American Medical Association* advises.

"The common technique used," *The Journal* says, "is to tell them that whereas most of their friends had to be accepted, their foster parents picked them out and chose them from a group of children and liked them best."

Tuberculosis Abstracts

Furnished Through the Courtesy of the West Virginia Tuberculosis Association

There has been a consistent decline in the death rate from tuberculosis in the United States from nearly 200 per 100,000 population in 1900 to about 50 for 1938. While this is gratifying, the statement does not picture the true situation, for round numbers tell us nothing about the special problems yet to be solved before the fight against tuberculosis can be declared won. Plans for the continuance of the fight must be based on knowledge of the needs, which are not uniform or standardized. Frederick T. Lord analyzes the present status of tuberculosis control and suggests what needs to be done. Extracts of his article follow:

NATION-WIDE TUBERCULOSIS PROGRAM

The favorable trend in the tuberculosis death rate throughout the United States is, for the most part, to be ascribed on the one hand to improvement in economic status and better housing and dietary standards, and on the other to a diminishing amount of community infection in consequence of education, case-finding and hospitalization. As these factors are to a considerable extent within our control, there is a prospect of the practical elimination of the disease.

Tuberculosis death rates vary with political subdivisions. Of the states, Arizona leads the list with a rate of 275 per 100,000 while Wyoming has the lowest rate, 18. Because the rate is high among Negroes, the problem of tuberculosis is especially serious in the South. A high prevalence of tuberculosis among Spanish-speaking Americans helps to account for high rates in the southwestern states. Resort states such as Arizona, New Mexico and Colorado are confronted with a difficult problem because of the migration of health seekers. Standards of living influence tuberculosis and financial resources vary widely among the states. The provision of beds for the tuberculous varies from 2.75 beds for each annual death to 0.20. Nine states make no provision for sanatoria, though five of them subsidize local institutions.

Tuberculosis control in the United States falls short of an attainable goal. Probably further substantial progress will not be accomplished without the inauguration of a uniform and adequate program throughout the country as a whole. Leader-

(Continued on page xxvii)

President's Page

The newly created Medical Service Committee held its first meeting in Charleston on August 31. This committee is composed of a member from each councillor district, and the members are nominated by the councillors and president and elected by the House of Delegates. Its function is to further study the problem of the indigent and low wage earner, and to act in an advisory capacity to county or district medical societies that desire to start plans for group hospitalization or prepayment medical insurance.

Previous work of the Low Cost Study Committee, along with experience from other states, was reviewed and it was unanimously agreed that we could heartily endorse group hospitalization insurance, but at the present time had no plan to offer for "Prepayment Medical Insurance." However, the committee expressed its willingness to help any county or district society with this experiment as long as the choice of physician and hospital was maintained.

The present status of medical relief for the indigent was presented at length and approval given two important experiments to be carried out immediately. List practice and its abuses, particularly in competitive areas, came up for much discussion. The committee agreed that certainly list practice in competitive areas should be discouraged and steps are being taken to correct this evil. A few West Virginia hospitals are not complying with the law in handling compensable injuries and this matter is being taken up with the compensation commissioner.

I believe this committee to be one of the most important ever to be created by our Association and its work through the coming years will be of great value to the medical profession. Dr. D. A. MacGregor of Wheeling, was elected chairman. The other members are Dr. B. C. John, Morgantown; Dr. J. L. Wade, Parkersburg; Dr. R. O. Rogers, Bluefield; Dr. R. H. Walker, Charleston, and Dr. Eugene Brown, Summersville.

Ray M. Bobbitt

President.

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OLD FASHIONED HOPE

If a national health program evolves from the next Congress, we cannot help clinging to the old fashioned hope that it will be directed by a doctor who is seasoned and trained in health work. The nation's health is an important item, and there is something peculiarly attractive in the idea of a skilled public health doctor in charge of a national public health program.

Our reasoning for wanting a health doctor in charge of a health program is perhaps a bit naive, but it is based on the same principle that prompts the average man to get his hair cut by a barber, to call a plumber if his bathroom fixtures leak or to call the fire department if his house catches on fire. The average man, unlike the wise heads of Washington, realizes that he can secure good service at a reasonable price by patronizing skilled artisans. That is why he does not call in his congressman when he wants his tonsils out.

Reasoning processes in the nation's capitol, of course, are based upon an entirely different principle. The average politician believes that a victorious election qualifies him not only to make the nation's law, but also to eradicate the boll weevil, revamp the army or coach the New York Yankees. Specialized chores that would awe the average man hold no qualms for the average politician. This process of reasoning no doubt accounts for the present scattering of public health activities through the Treasury Department, the Department of Labor, the Department of Agriculture, the Federal Security Administration, the WPA, and many other federal agencies directed and manned by vote getters.

The organized medical profession has been accused, and is no doubt guilty of fostering a certain amount of opposition to a national health program. However, it should be pointed out that medical opposition is directed against political bureaucracy; not against public health. If any proposed national health program would give to public health the recognition which it deserves and set up a coordinated federal department of health free from political influence and directed by a competent health doctor, then and only then would the medical profession give its enthusiastic and undivided support.

It should be pointed out that the United States Public Health Service, as it now exists, is comparatively free from political influence. However, the United States Public Health Service is not a bona fide department of our federal government and it has no supervision whatever over many of the government's public health activities. It is only one of many Washington by-products.

Once public health is recognized as a vital factor in American life and given the status which it deserves, the medical profession will be the first to get behind a comprehensive national health program. However, that does not mean a national health program as a subdivision of the social service bureau of the Department of Fisheries, directed by a defeated Congressman. It means a national health program directed by a learned and distinguished public health doctor with a seat in the president's cabinet.

SOUTHERN MEDICAL MEETING

With our confrere and companion-in-arms, Dr. Walter E. Vest of Huntington, serving as president of the Southern Medical Association, there is increased sentiment this year for

a "Southern Medical Special" from West Virginia to entrain for the thirty-third annual meeting at Memphis, Tennessee, on November 21-24, 1939. Plans are already being made for several special cars and if the number warrants, a special train will be operated for the benefit of Virginia and West Virginia doctors.

While the official program for the Memphis meeting has not yet been released, it is reasonable to assume that it will measure up to the unusually high standards of recent years. The scientific presentations before the Southern Medical Society have always been outstanding for their practical merit to the physicians of the South. Memphis is one of the South's largest and most attractive cities, the center of a large industrial and agriculture empire that has lost none of the southern tradition or atmosphere through expansion.

Hotel reservations at Memphis may be secured by writing Dr. John J. Shea, Box 224, Memphis, Tennessee. Reservations may also be made direct with the various convention hotels. Those listed in the July issue of the *Southern Medical Journal* were the Peabody, headquarters hotel, Gayoso, Chisca, Claridge, William Len, Tennessee, Devoy, Adler, Ambassador and Parkview.

West Virginia's member of the Southern Medical Council is Dr. R. J. Wilkinson, Huntington. Dr. Vest has recently announced the appointment of Dr. Horton Casparis, Professor of Pediatrics, Vanderbilt University, Nashville, on the Southern Medical Council to succeed Dr. Oliver W. Hill, Knoxville, deceased.

NOW IS THE TIME

During the next three months many of our JOURNAL advertisers will be selecting their advertising media for 1940. In order that THE WEST VIRGINIA MEDICAL JOURNAL may show up well, we urge our members to give particular attention to our advertising pages during October, November and December. If our members will cooperate by answering coupons and offers of literature we will be able to renew practically all our present advertising contracts in 1940.

Many of our present leading advertisers are trying our JOURNAL this year for the time. It is much easier to cultivate and holds advertisers than to resell them after they have become dissatisfied and cancelled. Our advertising revenue not only pays the complete cost of publishing the JOURNAL, but in addition, provides a surplus that is used in many different ways to promote the welfare of the medical profession of West Virginia. Displaying a lively interest in these advertisers is good business for everybody concerned.

LABORATORY ABUSES

Dr. A. E. McClue, state health commissioner, has called the JOURNAL's attention to the fact that a number of West Virginia physicians are making improper use of the facilities of the State Health Laboratory in Charleston. Dr. McClue pointed out that the Syphilis Committee of the West Virginia State Medical Association recommended several years ago that the work of the State Health Laboratory be limited to indigent cases. The Public Health Council carried out this recommendation and instructed the laboratory not to make laboratory tests unless specimens were accompanied by a statement from the attending physician, signed by the patient, certifying the patient's inability to pay for the test.

Dr. McClue stated that the laboratory had uncovered a number of instances in which the attending physician had sent in specimens from pay patients, had signed the patient's name to the certification, and had collected from the patient for the test made by the State Health Laboratory. Dr. McClue said this had been particularly true in the case of tests for barbers and beauticians and tests made under the new marriage examination law.

At the request of the State Health Department, a permanent committee was recently set up to advise with and guide the activities of the State Health Laboratory. The West Virginia State Medical Association is represented on this committee by Dr. F. A. Hodges, Huntington, and Dr. E. J. Van Liere, Morgantown. The Public Health Council is represented by Dr. W. E. Vest; State Health Department by Dr. A. M. Price, and the State Health Laboratory by Miss Katherine E. Cox, consultant. This new committee is greatly concerned over the alleged misuse of the state laboratory, which has burdened the laboratory with approximately 10,000 syphilis serological tests each month.

While the JOURNAL feels that this practice is not widespread, we call the attention to the abuse in the hope of correcting it. Dr. McClue stated that if this misuse of the state laboratory continued, the committee would take steps to summon the offending parties before the Public Health Council for disciplinary action.

SENATOR WYLIE PAYS

The Honorable Ward Wylie, M. D., secretary of the Wyoming County Medical Society, owner of the Wylie Hospital at Mullens, and senator of the ninth senatorial district of West Virginia, is a man who believes in taking care of his financial obligations. If the good senator cannot do this in one way, he does it another.

Dr. Wylie recently became indebted to the JOURNAL in the amount of one dollar. On the first of the following month a statement of this indebtedness was rendered to him. On the third day of the month the statement was returned by Dr. Wylie and attached to the statement was a one hundred dollar bill. The senator requested that the bill be receipted and sent back for his office files.

Thus far we have not been able to carry out Dr. Wylie's request, because we have not been able to break the bill and return the change. It might be pointed out that the bill tendered by Senator Wylie was issued in 1863 by the Confederate States of America. Any member who happens to have change for one hundred dollars in Confederate money will be rendering a great service to the parties concerned if they will "break" Dr. Wylie's bill and thereby allow us to consummate this deal.

TWENTY-FIVE YEARS AGO

Taken from the West Virginia Medical Journal for October, 1914.

Original articles appearing in the October, 1914 issue of the WEST VIRGINIA MEDICAL JOURNAL were written by Drs. G. D. Lind, W. W. Morton, J. Howard Anderson, Tom A. Williams, and G. A. MacQueen.

Here is an "ad" abstracted from the *Weston Republican* in the October, 1914 issue:

DR. A. B. BLANK & SON

Dr. C. D. Blank, who is making a special study of Chronic Diseases, will practice with his father, preparatory to entering college. Will treat the following diseases: Stomach, Liver and Kidney troubles, Rheumatism, Gall-stone, Catarrh, Female diseases, Nervous and Mental Diseases, Ulcers, Syphilitic affections, Scrofula and Skin diseases.

Treatment generally follows preparation. This young man reverses the procedure. Why go to college at all?

Dr. Frank L. Hupp has just returned from his long summer vacation on Lake George, New York.

Dr. Charles F. Hicks of Welch is building a palatial home on Fifth Avenue, Huntington. We congratulate the doctor on being able to build a palatial residence. Not many of us can do this.

Dr. G. Ackerman read a paper on the "Surgical Treatment of Goitre" before the Ohio County Society. He gave the mortality statistics of Kocher and Mayo. Dr. Schwinn opened the discussion.

A report of the Tuberculosis Campaign, from September 15, 1913 to September 15, 1914, was written by Dr. Harriett B. Jones, director of the Tuberculosis Campaign in West Virginia.

General News

POSTGRADUATE LECTURES

The annual series of postgraduate refresher courses sponsored jointly by the West Virginia State Medical Association and the State Health Department closed in late August with an average state-wide attendance of more than 18 physicians per lecture. There were 50 lectures presented, divided into five lectures in each of 10 different geographical centers. Thirty of the lectures were in obstetrics and 20 in pediatrics.

For the purpose of presenting the courses, the state was divided into a northern and southern circuit. Dr. E. D. Plass and Dr. William F. Mengert of the University of Iowa, presented the obstetrical courses and Dr. Lee Palmer of Louisville, Kentucky, presented the pediatric courses for the northern circuit. Dr. William J. Dieckman of the University of Chicago presented the obstetrical lectures in the southern circuit, with Dr. E. L. Bauer of Jefferson Medical College, Philadelphia, presenting the pediatric lectures.

A total of 857 physicians were in attendance at one or more of the meetings. There were 110 visitors. Obstetrics attracted more physicians than pediatrics. The average obstetrical attendance for the northern circuit was 20 physicians per lecture; for the southern circuit, 17 physicians per lecture. The pediatric attendance for the northern circuit was 16½ physicians per lecture; for the southern circuit, 15 physicians per lecture. The average overall attendance for the entire state was 18½ physicians per lecture.

The accompanying charts give the complete attendance at the various centers:

Postgraduate Attendance Chart
Northern Circuit

	1st Meeting	2nd	3rd	4th	5th	Average
Weirton	22	23	23	24	23	23
Moundsville	19	20	8	13	9	14
Buckhannon	21	25	22	22	23	23
Elkins	13	12	17	10	8	12
Keyser	20	23	19	16	17	19

Postgraduate Attendance Chart
Southern Circuit

	1st Meeting	2nd	3rd	4th	5th	Average
Bluefield	16	18	13	15	11	15
Williamson	14	12	9	5	8	10
Huntington	20	16	10	14	15	15
Beckley	27	29	30	30	27	29
Ronceverte	14	12	14	13	12	13

Physicians awarded certificates for attending the complete series of lectures follow:

Barbour-Randolph-Tucker Society at Elkins: Drs. A. P. Butt, Jr., Guy H. Michael, S. G. Moore, S. J. Skar.

Cabell Society at Huntington: Drs. James R. Bloss, Clarence H. Boso, M. Koenigsburg, C. O. Reynolds, Nellie Yost.

Central West Virginia Society at Buckhannon: Drs. S. P. Allen, A. B. Bowyer, C. C. Carson, E. R. Cooper, L. W. Deeds, F. C. Heath, S. W. Jabaut, J. P. Jones, D. A. Watkins.

Greenbrier Valley Society at Ronceverte: Drs. H. D. Gunning, C. W. Lemon, Dr. Bryce, H. L. Kirkpatrick.

Hancock Society at Weirton: Drs. F. T. Dare, E. L. Justice, E. R. McNinch, Joseph B. Palmer, F. E. Polen, A. B. Rinehart, L. O. Schwartz, Albert Sunseri, G. L. Thompson.

Marshall Society at Moundsville: Drs. Norman G. Angstadt, W. G. C. Hill, Chas. G. Morgan, J. C. Peck, J. A. Striebich.

Mercer Society at Bluefield: Drs. J. F. Biggart, Henry C. Davis, E. W. Horton, O. G. King, H. G. Steele, A. C. Van Reenan.

Mingo Society at Williamson: Drs. Davis, Geo. W. Easley, G. B. Irvine, Nathan Poliakoff, S. G. Zando.

Potomac Valley Society at Keyser: Drs. E. A. Courrier, R. W. Dailey, J. F. Easton, W. A. Flick, T. C. Giffin, R. W. Love, Maurice Maxwell, W. F. McFarland, Harold Miller, J. A. Newcome, Paul R. Wilson, M. F. Wright.

Raleigh Society at Beckley: Drs. L. R. Ayers, Wm. P. Bittinger, W. C. Covey, Ross P. Daniel, E. N. Dupuy, E. S. Dupuy, B. W. Eakin, Scott A. Ford, L. M. Halloran, George Johnson, Frank J. Moore, Ross E. Newman, W. M. Riley, L. E. Shrewsbury, E. B. Wray, Robert Wriston.

Out-of-state physicians who attended the complete series of lectures follow:

Drs. John F. Gallagher, J. Ellison Gamble, John Y. Bevan, F. H. Riney, J. W. Witten, Melvin B. Crockett.

ACADEMY OF OPHTHALMOLGY

The forty-fourth annual meeting of the American Academy of Ophthalmology and Otolaryngology will be held in Chicago, October 8-13 at the Palmer House. The Academy will again present its courses of instruction with more than 100

specialists as teachers; four afternoon programs of motion pictures and a scientific exhibit.

There will be one joint session at which Dr. George M. Coates, Philadelphia, will deliver his presidential address and Dr. Burt R. Shurley, Detroit, will be introduced as the Academy's guest of honor for the year and will deliver an address.

At this session a symposium on essential hypertension will be presented by Drs. Albert C. Furstenberg, Ann Arbor, Michigan, speaking from the standpoint of the otolaryngologist; Henry P. Wagener, Rochester, Minnesota, the ophthalmologist, and Roy W. Scott, Cleveland, the internist.

Two foreign guests will address the section meetings, which will be held on alternate afternoons. Those guests are Prof. Joseph Igersheimer, Istanbul, Turkey, who will discuss "The Optic Nerve and Diseases of Hypertension," and Arthur DeSa, Pernambuco, Brazil, who is to speak on "Ethmoiditis."

A. P. H. A. CONVENTION

Thirty-five hundred health officers, nurses, engineers, school physicians, laboratory directors and other health specialists will attend the 68th Annual Meeting of the American Public Health Association and meetings of related organizations in Pittsburgh, Pennsylvania, October 15-20.

On Sunday, October 15, the Sixth Institute on Public Health Education begins. The Institute continues on Monday, October 16, and the International Society of Medical Health Officers, the American School Health Association, the Association of Women in Public Health, and the National Organization for Public Health Nursing also meet. Five conference groups convene Monday: State Laboratory Directors, State Sanitary Engineers, Municipal Public Health Engineers, Directors of Local Health Service and State Directors of Public Health Nursing.

Headquarters will be the William Penn Hotel. The preliminary program may be obtained from the American Public Health Association, 50 West 50th Street, New York, N. Y.

OHIO COUNTY'S PROGRAM

For the benefit of Association members who might care to attend one or more of the sessions of the Ohio County Medical Society at Wheeling, the JOURNAL is publishing below their complete scientific schedule for the 1939-1940 session. Unless otherwise announced, all meetings will be held at 8:30 o'clock p. m., in the solarium of the Ohio Valley General Hospital, Wheeling.

October 6: Dr. Temple Fay, Professor of Neurology, Temple University, Philadelphia. Subject, "The Fundamental Basis of Attack Upon Five Problems in Medicine."

October 20: Dr. W. James Gardner, Cleveland Clinic, Cleveland, Ohio. Subject, "Intracranial Complications of Upper Respiratory Infections."

November 3: Dr. Allen F. Voshell, Professor of Orthopedic Surgery, University of Maryland, Baltimore. Subject, "A Discussion of Fracture Fundamentals and Errors."

December 1: Dr. Frank H. Lahey, Lahey Clinic, Boston. Subject, "Various Thyroid States, Their Diagnosis and Management."

December 15: Dr. I. S. Ravdin, Professor of Surgery, University of Pennsylvania, Philadelphia. Subject, "Some Problems in the Management of Patients with Biliary Tract Disease."

January 12: Annual Jacob Schwinn Scientific Lecture by Dr. W. P. Sammons, Wheeling, on "Compressed Fractures of the Vertebrae."

January 26: Dr. Norris W. Vaux, Professor of Obstetrics, Jefferson Medical College, Philadelphia. Subject, "Some Recent Advances in Endocrinology Relative to Obstetric Practice."

February 9: Dr. L. J. Karnosh, Professor of Nervous Diseases, Western Reserve University, Cleveland. Subject, "Neuralgia, Neuritis and Neurosis."

February 23: Dr. W. Wayne Babcock, Professor of Surgery, Temple University, Philadelphia. Subject, "Abdominal Drainage."

March 8: Dr. T. Grier Miller, Professor of Clinical Medicine, University of Pennsylvania, Philadelphia. Subject, "Medical Aspects of Gastric and Duodenal Ulcer."

March 22: Dr. Stanley P. Reimann, Associate Professor of Surgical Pathology, Graduate School of Medicine, University of Pennsylvania, Philadelphia. Subject, "Secondary Breast Tumors."

April 5: Dr. George P. Muller, Professor of Surgery, Jefferson Medical College, Philadelphia. Subject, "Acute Appendicitis."

April 19: Dr. R. S. Dinsmore, Cleveland Clinic, Cleveland, Ohio. Subject, "Tumors of the Neck."

May 3: Dr. Victor Carabba, Clinical Professor of Surgery, New York University, New York City. Subject, "Electrosurgical Aseptic Intestinal Anastomosis."

County Society News

CABELL COUNTY

The regular monthly meeting of the Cabell County Medical Society was held at the Governor Cabell Hotel, Huntington, on the evening of September 14 with Dr. Moses Paulson, Baltimore, as the guest speaker. Dr. Paulson, assistant visiting physician at Johns Hopkins, discussed "Newer Aspects of Gall-Bladder Disease of Practical Import."

Following an interesting discussion a buffet supper was served to the members and guests in attendance.

JAY L. HUTCHINSON, *Secretary*.

EASTERN PANHANDLE

The regular meeting of the Eastern Panhandle Medical Society was held at Martinsburg on September 13, 1939. The guest speaker was Dr. Emil J. C. Hildenbrand, Washington, D. C., who gave a most interesting paper on "Occlusive Peripheral Vascular Emergencies."

A report on the state meeting at White Sulphur Springs was made following the business session. The cancer committee is arranging to have a special cancer program, together with a clinic, in conjunction with the December meeting. The December meeting will also include a number of interesting cases from the Crippled Children's Clinic at The Kings Daughters Hospital by Dr. Compton Reilly, of Baltimore, Maryland.

M. H. PORTERFIELD, *Secretary*.

FAYETTE COUNTY

The regular monthly meeting of the Fayette County Medical Society was held at the Hill Hotel, Oak Hill, on September 14, 1939. Dr. Sobisca S. Hall, Clarksburg, was the guest speaker of the evening. His subject was "Entoral Endoscopy; Its Application to Diagnosis and Treatment." This was a most interesting presentation.

New members admitted to the society at this meeting were: Dr. G. W. Grafton, Thurmond; Dr. O. D. Ballard, Elverton; Dr. B. F. Puckett, Oak Hill, and Dr. J. L. Roark, Powellton.

The society also reported the following changes of address:

Dr. P. E. Prillaman, from Oak Hill to Scarbro; Dr. J. N. Reeves, from Ronceverte to Oak Hill; Dr. L. I. Hoke, from Layland to Nitro; Dr. W. A. Derrick, from Montgomery to Charlottesville, Virginia, and Dr. R. B. Engle, from Longacre to Glen White.

GILBERT A. DANIEL, *Secretary*.

KANAWHA COUNTY

Dr. C. W. Stuart, D. D. S., M. D., director of the Department of Oral Surgery, Grant Hospital, Chicago, was the guest speaker at a joint meeting of the Kanawha Medical Society and the Kanawha Valley Dental Society held at the Daniel Boone Hotel, Charleston, on the evening of September 12. He gave an interesting and practical paper on "Oral Hygiene," which was liberally discussed by both groups.

The following applicants were elected to membership in the society: Dr. Leroy B. Matthews, Dr. M. F. Petersen and Dr. J. H. Robinson, all of Charleston.

A. SPATES BRADY, JR., *Secretary*.

OHIO COUNTY

Dr. Ray M. Bobbitt of Huntington, president of the State Association, was the guest speaker for the September 22 meeting of the Ohio County Medical Society, which was held in the solarium of the Ohio Valley General Hospital, Wheeling. Dr. Bobbitt gave an interesting presentation of the situation in West Virginia pertaining to medical economics and a liberal discussion followed. Dr. Bobbitt spoke particularly on the problem of indigent and low income medical care.

Dr. Temple Fay, Professor of Neurology, Temple University, Philadelphia, will be the guest essayist at the October 6 meeting. His subject will be "The Fundamental Basis of Attack Upon Five Problems in Medicine."

R. W. LUKENS, *Secretary*.

PARKERSBURG ACADEMY

A special meeting of the Academy of Medicine of Parkersburg was held at the Camden Clark Hospital on the evening of August 23 for the purpose of discussing local hospital insurance problems. It was voted to explain the position of the society in regard to commercial hospital insurance through a newspaper advertisement and a contribution of $65 was received toward the cost of publication.

Dr. Louis H. Douglass, Professor of Obstetrics, University of Maryland, Baltimore, was the guest speaker at the meeting of the Academy at the Camden Clark Hospital, September 6. He gave an

excellent paper on "The Recognition and Treatment of Some of the Late Complications of Pregnancy." Numerous questions gave rise to an interesting discussion.

The following physicians were unanimously elected to membership in the Academy: Drs. C. N. Brown (honorary) ,Elizabeth; James P. Jones, Pennsboro; E. D. Staats, Ripley; H. C. Bateman, Williamstown; C. L. Goodhand, Parkersburg; L. E. Kroger, Parkersburg.

Dr. James L. Wade reported to the Academy on the August 31 meeting of the new Association Medical Service, of which he is a member.

A. C. WOOFTER, *Secretary*.

Obituaries

DOCTOR B. S. RANKIN

Dr. Barrick Samuel Rankin, Kingwood, West Virginia, prominent Preston county physician and former member of the West Virginia House of Delegates, was drowned in the Cheat river near his home on August 23, 1939. He was 67 years of age and had practiced in northern West Virginia for more than thirty years.

Dr. Rankin was born at Clearfield, Pennsylvania, on July 16, 1862 and received his early education there. In 1907 he was graduated from Baltimore Medical College and received his West Virginia license the same year. He took an active part in the civic, social and political life of his county, serving as president of the Preston County Board of Education, a member of the West Virginia House of Delegates, and later superintendent of the Spencer State Hospital. During the World War, Dr. Rankin served 17 months overseas as captain in the Army Medical Corps.

Dr. Rankin was a member of his county and state society and the American Medical Association. He was one of the Associaiton's most faithful attendants at state and county meetings.

GLASSES FOR NEARSIGHTEDNESS

Whether a nearsighted person can do without glasses all the time depends to a great extent on his temperament. If he is the highstrung type of person who must see clearly all the time and who, intentionally or unintentionally, squints and strains to see distinctly without his glasses, then he must wear them constantly. If, on the other hand, he is amiable, easygoing, placid or even phlegmatic, he can usually use his glasses or not.—*Hygeia.*

Woman's Auxiliary

ORGANIZATION

The Committee on Organization of the Woman's Auxiliary to the West Virginia State Medical Association recognizes three phases of this important work: (a) the perfecting of county groups already organized; (b) the organization of new county Auxiliaries; (c) the enrollment of members at large. To further this work the committee, which is composed of the three vice presidents and the president-elect, has divided the state into districts, each member to have charge of all phases of organization in her alloted territory.

In an attempt to perfect Auxiliaries already organized, an effort should be made to reinstate former members, and all eligible non-members should be invited to join the local group. It is suggested that each county membership chairman conduct one program annually for the purpose of informing the members of local Auxiliaries on the aims and purposes of the Medical Auxiliary.

Before the organization of a new Auxiliary can be effected, the permission and cooperation of the county medical society must be secured, and an organizer appointed by them. A meeting should then be arranged, with a state medical Auxiliary officer or chairman present to explain the purposes and ideals of the Auxiliary. At this time a temporary chairman and a constitution committee are selected. The next procedure is the calling of an organization meeting, at which the constitution should be adopted, officers and committee chairmen named, and the new Auxiliary should be ready to function.

Relative to members at large, Article IV, Section 2, of the State Constitution and By-Laws reads: "Members of this Auxiliary shall be composed of the Woman's Auxiliaries to the county medical societies, and of those women holding membership at large, which may be attained by any woman eligible to membership, in whose county conditions render impracticable the formation of a county auxiliary." With this type of enrollment available, every doctor's wife in West Virginia can accept the auxiliary membership for which she is eligible.

The successful membership chairman is the one who works in close cooperation with the other chair-

men and who looks upon membership, not as an end in itself, but as an instrument in promoting the objects of the Auxiliary.

The best incentive to membership in the Auxiliary is an understanding of the set-up of the organization, the work of the various committees and what other counties and states are doing. This information comes from the *Auxiliary Handbook*, the *National News Letter*, the Auxiliary pages of the *Journal of the American Medical Association* and THE WEST VIRGINIA MEDICAL JOURNAL.

The principal functions of an Auxiliary are: Health education, public relations, legislation (reserve force), philanthropy and social. The most important objectives of an Auxiliary are to direct public thinking and actions in channels the medical profession desires and to extend authentic information on health.

A member supports her Auxiliary by paying dues, attending its meetings regularly and accepting offices and chairmanships in other organizations, especially those related to health. In such positions she is able to help obtain informed speakers who will talk on approved material, so that the programs and projects shall be scientifically sound. These positions enable her, also, to keep informed about medical matters and activities in other organizations.

The following material is from a pamphlet distributed by the national chairman of organization: "The busy wife is an asset to the Auxiliary, if she is an informed member, because she has many opportunities to carry the aims and decisions of the medical profession and keep health leadership where it belongs—with the profession. As a member, she may speak with authority, receive respect and attention that will be missing as an unattached doctor's wife. It is not necessary to partake of every phase of Auxiliary work to be a good member—only what one can do. She should know when to keep quiet, when to report to advisers, when to answer and what to say.

"If for no reason but to assemble regularly and study the history of the medical arts and the medical heroes, an Auxiliary would be worthwhile, because it would give wives an understanding of the supreme unselfishness and the greatness of the profession.

"The time has come when the Auxiliary has so proved its worth that the question is not, 'Are you an Auxiliary member?' but, 'Why are you not a member?' "

MRS. H. V. THOMAS.

RADIO PUBLICITY

In the September issue of *Hygeia*, the first announcement of the radio program of the American Medical Association is announced. The title of the program for 1939-1940 is "Medicine in the News."

This program is the health education program sponsored by the American Medical Association and the National Broadcasting Company. The first broadcast will be put on the air October 19 at 4:30 p. m., eastern standard time. All members of the Auxiliary should acquaint themselves with this broadcast and endeavor to create an interest in it.

COUNTY AUXILIARY PROGRAMS

For the benefit of county medical auxiliaries, the following program outline is suggested by the Program and Health Education Committee, of which Mrs. A. A. Seletz is chairman:

October: "Becoming Acquainted with Auxiliary."

November: "Our Community in Medicine."

December: "Health Hazards."

January: "New Year Resolutions Regarding Health."

February: "Medical Care for All."

March: "Influential Men in the Field of Medicine."

April: "The Age of Reducing."

May: "Social Functions of Year."

STATE BOARD MEETING

The fall meeting of the state board of the Woman's Auxiliary will be held at the Woman's Club, Charleston, on October 6. The guest speaker will be Mrs. Rolla K. Packard of Chicago, national president. The board meeting is scheduled for 10 o'clock and Mrs. Packard will make the luncheon address. Members of the Kanawha Auxiliary will be hostesses at the luncheon.

LUMPY JAW OF GALL-BLADDER

A rare case of lumpy jaw of the gall-bladder is reported in *The Journal of the American Medical Association* for July 29.

Lumpy jaw, also called big jaw, clams, clyers or wooden tongue, is a chronic infectious disease of cattle sometimes transmitted to man and is known in medical circles as actinomycosis.

Neighbor Journals

PRICE OF VIGILANCE

When the guards are at play with the pretty kitchen wenches in the courtyard the enemy pikesmen are most apt to scale the walls and slit a number of gullets within the stronghold.

Just so when medical vigilance is relaxed regarding such public health measures as compulsory vaccination against smallpox. For some time proud spokesmen have pointed out that smallpox was fast becoming a little known, little seen disease. That desirable state of extinction of one of the most terrible scourges of mankind was certainly once rapidly approaching realization. But here and there the guards dallied, lawmakers were misled by the clamor of various loud cults and quackeries, both of performance and mental processes, and laws requiring compulsory vaccination were killed in passage or repealed. So once again the warnings are at hand of possible dreadful epidemics to come.

Since 1931 not a single case of smallpox has been reported in New Jersey. That state enforces a compulsory vaccination law. No disfiguring, deadly epidemic of the scourge of the Middle Ages can gain foothold there. During the past seven years some 13,000 cases of smallpox have been reported in certain of the northern and far western states whose combined population is about equal to that of New Jersey's. The New England states are practically completely free of smallpox, due to compulsory vaccination laws.

Let medical men everywhere remain eternally vigilant when the cults and quacks in the guise of pretty kitchen wenches begin to tempt those on the ramparts. Let not a medieval pandemic be charged to the dallying of the physicians of this land.—*Southwestern Medicine.*

HEALTH CONDITIONS IN GERMANY

Official statistics on the health of the German people reaching this country recently through the press of other European countries appear to substantiate the theory that economic and social conditions are much more important in safeguarding the health of any nation than any sort of medical and health program which may be devised.

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It was pointed out that morbidity rates in Germany have soared during the past six years, indicating lowered disease resistance among the German people.

The following causes were listed: Poor nutrition due to insufficient quantity and inferior quality of foods; unhygienic overcrowding as a result of the youth movement; food poisoning due to spoilage of hoarded foods; poor food inspection; overwork; fewer physicians, midwives and raw supplies used in medical and health services.

Assuming that only a part of the picture described and attributed to bad economic and social conditions is accurate, it becomes apparent that even Germany's widespread system of sickness insurance and other social insurances cannot cope with situations which can be remedied only through the application of sound economic and social principles.

Conditions in Germany should be an object lesson to those in the United States who are insisting on putting the cart before the horse—establishing a national system of medical and health services along socialistic lines in lieu of improvements in our economic structure.—*Ohio State Medical Journal.*

OVERCROWDING OF THE MEDICAL PROFESSION

There are more physicians in relation to the population in our country than in any other country in the world. While the general population has reached a point where it is increasing very slowly, the figures show that in recent years some 5,500 medical graduates are turned out each year, whereas only about 4,000 physicians die. This means an increase yearly in this ratio.

There are some who would argue that no attempt should be made to curtail the number of medical students of the country and that expansion of equipment of medical schools to care for more of the applicants should not be discouraged, the law of the survival of the fittest being allowed to apply after graduation. They perhaps do not know that each year there are some 12,000 applicants to our medical schools, only about half of whom can be accommodated. Incidentally these 12,000 applicants average about three applications apiece, and one is known to have made as high as forty-one applications, to assure admission somewhere.

Overcrowding in business leads to cut-throat competition. In a profession it leads to commercialism, something that should not be in evidence

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in a profession, but which is always present to some extent and is increased with financial stress. This overcrowding is detrimental to the profession and the public.

According to Bevan, in 1904 when the Council on Medical Education was created, there were some 28,000 medical students in the country. By increasing requirements and lengthening the medical course, the number was reduced to 1,200 by 1920. The number has been gradually increasing since then to about 23,000 in 1935.

Far be it from us to advocate lengthening the present medical course, nor of making it more difficult. In order to reduce the number of medical students, the fairer way would seem to be in being more selective in accepting candidates for matriculation in the medical course, not only from the standpoint of scholarship, but from that of character and general fitness, difficult as this latter may be to evaluate.—*Minnesota Medicine.*

BOOK REVIEWS

THE ART OF ANESTHESIA

"The Art of Anesthesia," by Paluel J. Flagg, M. D. Sixth edition revised., pp. 491. J. B. Lippincott Co., Philadelphia, Pa.

Any work that can go through six editions in twenty-three years deserves respectful consideration. Certainly this is true of The Art of Anesthesia. The author occupies many staff positions as professional anesthetist in the hospitals of greater New York and is also chairman of the A. M. A. Committee on Asphyxia.

The book covers all types of general, local and regional anesthesia. It devotes chapters to cyclopropane, dental anesthesia and analgesia, basal anesthetics, emergency anesthesia, as well as carbon dioxide rebreathing. Some little space is also devoted to pneumotology—the use of gases for the treatment of clinical diseases and for the saving of life (resuscitation).

The book can be cheerfully recommended to any physician who may be called upon to anesthetize a patient. It certainly should be available to every hospital interne.

ABNORMAL BRAIN RHYTHM

Further evidence that the abnormal brain rhythm associated with epilepsy is inheritable is given by a comparison of cerebral rhythms in relatives of epil-

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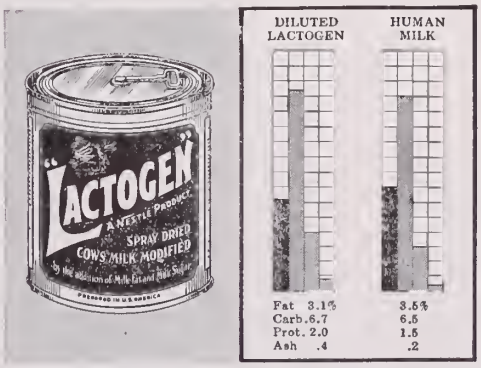

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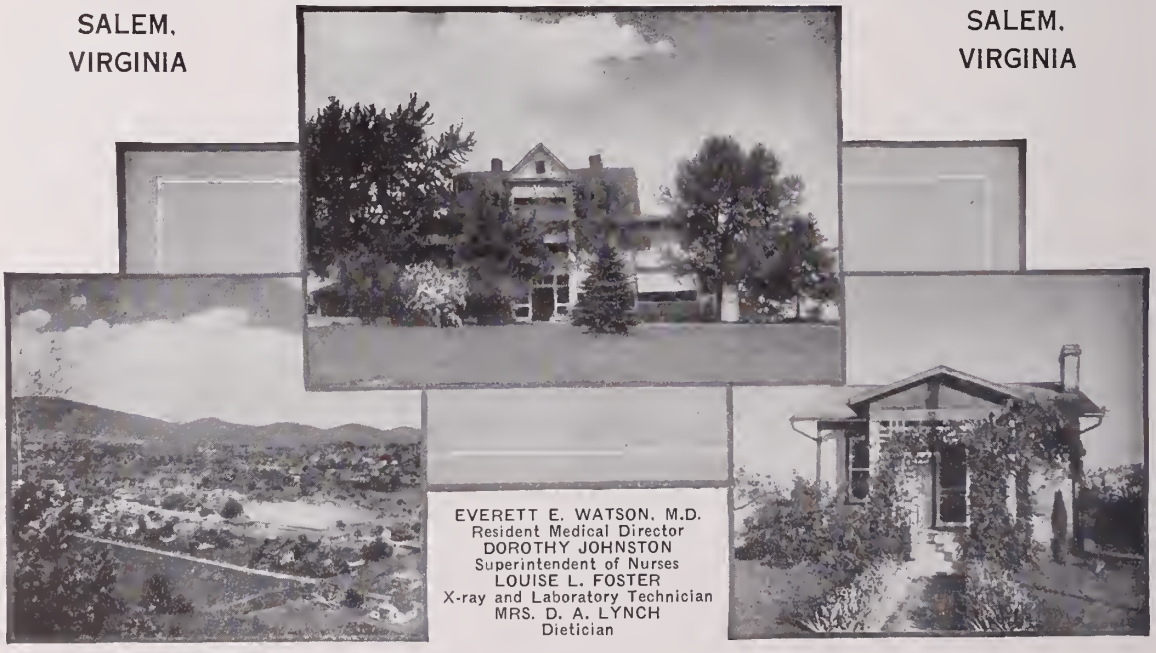

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eptic patients with those in unrelated persons, presented in *The Journal of the American Medical Association* for September 9.

Definitely abnormal records were nine times more frequent among 138 persons related to epileptic patients than among fifty healthy persons with no family history of epilepsy, according to electrical studies made by W. G. Lennox, M.D., Erna L. Gibbs and F. A. Gibbs, M.D., Boston, they report.

"In forty-six instances," they state, "records were obtained of both parents of the patient. In 28 per cent of these families the records of both parents were definitely abnormal. In 94 per cent the record of at least one of the parents was unmistakably abnormal. In four per cent the record of one parent was normal and of the other doubtful. In only one instance (two per cent) was the record of both parents normal.

"Epilepsy has long been recognized as a recessive mendelian trait. Our study suggests the possibility that cortical dysrhythmia (abnormal cerebral rhythm), the essential manifestation of epilepsy, may be a dominant trait. Since epileptic persons form about 0.5 per cent of the population, those predisposed to epilepsy or a kindred disorder would number about 10 per cent. A mating of two predisposed persons by the law of chance would occur only once in a hundred matings.

"Though the opinion that heredity is an important influence in epilepsy is widespread, only one epileptic person in five is able to name any relative who has been similarly affected."

Drivers between the ages of 16 and 20 kill on the average twice as many persons in highway accidents as is averaged by all motorists, according to statistics in the August issue of *Hygeia, The Health Magazine.*

WITH OUR ADVERTISERS

NEW SQUIBB LABORATORY

Establishment of a new laboratory for the study of filterable virus diseases, in the treatment and prevention of which science is believed to be at the threshold of an important advance, is announced by the Squibb Biological Laboratories.

Dr. Raymond C. Parker, biologist of the Rockefeller Institute for Medical Research, and for many years an associate of Dr. Alexis Carrel, has been appointed to head the laboratory, which will operate

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as a unit of the Biological Division of E. R. Squibb and Sons at New Brunswick, N. J. The new building is a continuation of a program of expansion which began in the fall of 1938 with the dedication to pure science of the $750,000 laboratory of the Squibb Institute for Medical Research.

"Enlargement of the company's biological facilities was undertaken because rapid development in the knowledge of filterable viruses has made it probable that our ability to prevent and control infections from these sources will have a rapid expansion in the immediate future," Dr. John F. Anderson, director of the Biological Laboratories, explained.

More than 500 scientists from ten nations will witness the first demonstration of the new virus laboratory during a tour of the Squibb Institute and the Biological Laboratories on September 6 and 7. The group, composed of delegates to the Third International Congress for Microbiology, which is meeting in New York City, September 2 to 9, will also inspect the Rockefeller Institute for Medical Research at Princeton on Wednesday, September 6.

TUBERCULOSIS ABSTRACTS

(Continued from page 485)

ship and financial assistance in the solution of the problem should come from the central government, leaving the actual operation of the project to states and localities.

NATIONAL HEALTH PROGRAM

A national health program was presented at the National Health Conference in Washington, July, 1938. The section on the control of tuberculosis recommended case-finding, especially by x-ray examination of contacts of known cases, isolation and treatment of persons with active disease and periodic observation of those with latent or quiescent disease. A draft of a proposed bill to carry out these measures was presented by Homer Folks to the National Tuberculosis Association in February, 1939 and was approved in principle as a working basis for federal provision. The suggestion was that the Surgeon General of the United States Public Health Service be authorized to prescribe the rules and regulations necessary to carry out the plan and that a Division of Tuberculosis Control be established in the Service. The bill suggests for the year ending June 30, 1940, an appropriation of a sum not to exceed $7,750,000; for the year ending June 30,

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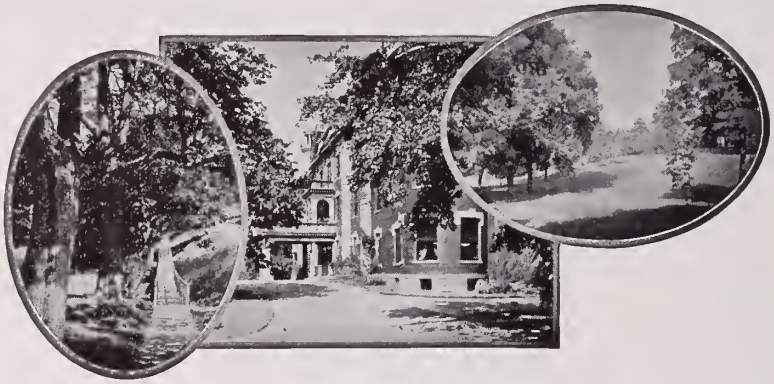

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16 pages	13.55	12.55	16.55	15.05	20.55	18.05	29.50	25.50
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1941, of a sum not to exceed $33,500,000, for the year ending June 30, 1942, of a sum not to exceed $37,000,000; and for each year thereafter of such sum as may be deemed necessary to carry out the purpose of this act, provided that subsequent to the year 1945 the sum shall not exceed $17,500,000.

The Wagner Bill to be enacted as the National Health Act includes provisions for tuberculosis control much the same in principle as those suggested by the National Tuberculosis Association and in addition requires financial participation by the states and provides for federal and local advisory councils. Moneys are to be alloted on a matching basis, the highest proportion, two-thirds, being applicable to the state with the lowest financial resources, and the lowest, one-third, to the state with the highest financial resources.

ADDITIONAL BEDS NEEDED

In addition to te beds already available for tuberculosis, it is estimated (on the basis of two beds per annual death) that about 40,000 more are needed. The criticism that from 25 per cent to 35 per cent of hospital beds in the United States are unoccupied does not apply to tuberculosis sanatoria, for a census covering 92,339 beds for tuberculosis patients showed 14 per cent vacancies, but a waiting list almost as great. The unequal distribution in patient load indicates regional variation in the pressure for beds. Assuming that the decline of tuberculosis will continue, sanatoria should be so constructed and located that they can be used later for general or other hospital purposes.

In case-finding, the most important method is the x-ray examination of all family contacts of known cases of tuberculosis. The extent of the case-finding problem in any community may be roughly estimated by multiplying the number of discoverable cases, using five cases per death as the number which can be discovered, and multiplying this result by the estimated number of exposed persons, or 2.4 per family.

Persons reported as dying of tuberculosis, patients in tuberculosis sanatoria and those with tuberculosis in the practice of physicians are among the groups to which recourse may be had in the case-finding program, and each case so located may serve as the starting point for the investigation of family contacts.

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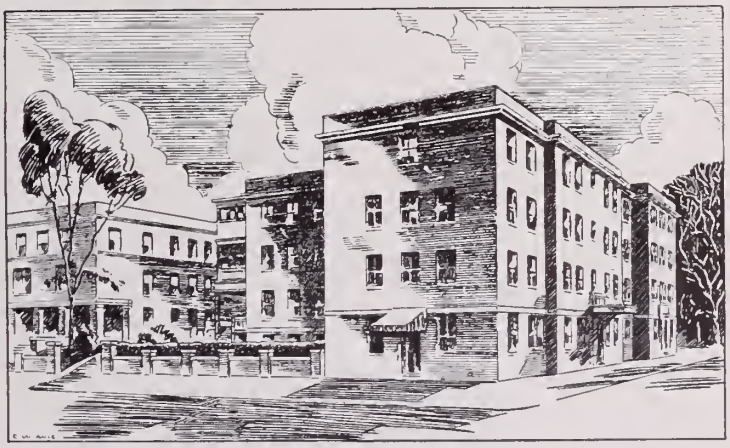

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MASSACHUSETTS PLAN

The Department of Health of Massachusetts has recently promulgated rules and regulations which, in part, are as follows:

As soon as a diagnosis of tuberculosis has been established, arrangements should be made for the examination of the immediate family and of other persons with whom the patient has been in close contact. If the family cannot afford x-ray examination by a private physician, facilities are available through the various state, county and municipal sanatoria. Persons with suspicious findings and those who have had contact with a tuberculous patient should be kept under medical observation as long as advised by the physician.

Case-finding in school children has been in operation since 1924. The school program suffers from failure to secure parental consent for the investigation of more than 50 to 60 per cent of the children. The advantages of the finding of tuberculosis in school children are twofold—to the affected child and to the community. Yet these advantages are fully realized only when the investigation includes both children and family contacts. In general, little has thus far been done to round out this part of the program and to examine by x-ray the family contacts of the children with the childhood (hilus) as well as the adult type of tuberculosis.

The examination of a larger proportion of the family contacts of tuberculous patients in the practice of physicians may be promoted by local boards of health through a circular letter to physicians asking for a list of all tuberculous patients under their care during the year, whether or not previously reported, emphasizing the importance of sputum examination in suspicious cases, calling attention to the availability of the State Bacteriological Laboratory or other approved laboratories, noting the importance of the x-ray in the early diagnosis of the disease and listing the facilities in the state for the x-ray examination of patients and contacts unable to pay.

Group investigation in Massachusetts should be extended to include all teachers, medical students, hospital interns and nurses, college students, diabetic patients, and nursemaids and domestic help in homes where there are children.

National and State Program for Tuberculosis Control, Frederick T. Lord, M. D., New England Jour. of Med., Vol. 220, No. 25, June 22, 1939.

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THE SURGEON'S RESPONSIBILITY IN A CHANGING WORLD*

By R. J. WILKINSON, M. D.
Huntington, West Virginia

THAT the whole world panorama is undergoing a change must be apparent to those of us who keep abreast with world happenings; in fact these changes have gained momentum to the extent that one does not know what the next day may bring forth. While these upheavals have dealt largely with overthrowing established governments by a wanton disregard for human rights and liberties, yet, who can say but that these changes are a part of an evolutionary process and the natural sequence of a developing civilization.

History reveals that when individuals and nations alike become too intellectual and rich there ensues a disregard for things formerly held sacred. Selfishness and lust for more power actuate their every thought and action until finally the man who earns a livelihood by the sweat of his brow rebels, and this rebellion is perfectly natural in that the rebels feel there is nothing to lose since fate has decreed for them a life of drudgery. In their desire to improve living conditions they are often misled by soap-box oratory to the extent that labor, through its various agencies, has caused the pendulum to swing too far from center, and to meet this threat capital has replaced man power with machines, thereby increasing the ranks of unemployed to an unprecedented number. This unrest is further accentuated by many of our high school and college graduates who expect by reason of their intellectual attainments to be leaders, but are disappointed when they are faced with the realization that this leadership is only available, in most instances, to those who are endowed with money or some other influence that gives them preference. This disappointment engenders a feeling of protest against capital and society as we have known it, resulting in an association with some form of

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*Oration in Surgery delivered before the West Virginia State Medical Association, White Sulphur Springs, July 12, 1939.

"ism" other than Americanism and finally a control of our political destiny. With this untrained leadership in command of our government and its many subdivisions one can expect unrest and a change of our economic status; in fact, if this condition long prevails we may anticipate a deterioration of our so-called civilization.

GOVERNMENT CONTROL

In modern time we have but to look to Russia, Germany, Italy, and finally Spain to appreciate the real significance of government control that has been assumed by questionable leadership, a leadership that disregards the rights and liberties of nations and individuals alike.

It seems apparent that, as long as we collectively and as individuals realize our responsibility to nation, state, and our local communities, we may indeed be thankful that we have been privileged to enjoy a peak civilization.

Medicine like nations has had its rise and fall; in fact, history records that the art of medicine and surgery was practiced thousands of years before the time of Christ or during the period of China's cultural and material power. Did this civilization last? No, only until it became too powerful; then graft and corruption soon weakened its very foundation until at last ignorance and poverty held sway. The same story might be told of many other powerful nations, as Egypt, with all of its pomp and splendor; of Greece, with its great intellectual development, or of the Roman Empire, with produced the world's greatest artists and musicians.

It seems strange indeed that during all the years of intellectual and cultural achievement by these great nations, medicine failed to keep pace with other endeavors, and as these nations deteriorated the advances that had been accomplished were relegated to an attic to lie dormant for many years, while the sick were treated by witchcraft with all of its primeval superstition.

While Aesculapius is called the mythical Grecian God of Medicine, since it was he who could restore life with blood; truly it can be said that Hippocrates, 460 B. C., is the "Father of Medicine" as we know it, since he was the first who attempted to classify disease and it is from this meager beginning that medicine has slowly evolved to the present day of marvelous achievement. This advancement has been accomplished by an adherence to this great principle notwithstanding the many cross currents that have at times seriously retarded such a progress, and I have particularly in mind the teaching of Galen, 200 A. D., who as you know, promulgated the idea of symptomatic medicine.

I think we can truly say that the Renaissance period of Europe's development contributed largely to reviving and developing scientific medicine, for during this period there was a transition from medieval to modern thought; one of the notable contributions being William Harvey's (1578-1657) discovery of the blood circulation which certainly created a stimulus for further investigation and study.

PROGRESS OF MEDICINE

Down through several centuries medical progress was slow but positive and it was not until the nineteenth century that many eminent teachers revolutionized medicine by their discoveries. Notable among these were Pasteur, (1822-1895), the great French bacteriologist and chemist; and Lister, the English surgeon (1827-1912) who first introduced antiseptic surgery. It was not, however, until the turn of the twentieth century that real progress was noted, for it was only then that the principles as enunciated by those great teachers were actually put into practice.

No doubt many of you are descendants of, or remember with reverence, the old family doctor, and it is with a sense of regret that we acknowledge his passing, for here was a man whose every ministration was actuated by a great desire to render service. This man was truly a guardian angel; a man who enjoyed the reverence and respect of everyone.

While his scientific knowledge might not coincide with our present day conception, yet, you must agree that his very presence brought happiness and comfort to a disturbed family, not to mention the assurance his medication wrought upon the sick. It was his lot to be both physician and surgeon, and for one of his limited training along technical lines his results were often miraculous. But as scientific medicine developed, it became apparent to some of our great teachers as Halstead, Osler, Mayo, Welch, Murphy, and others, that it was no longer possible for a physician to master the field of medicine, so these men began to specialize with the result that medicine has been revolutionized until today almost every branch belongs to a specialist.

PROOF OF ABILITY REQUIRED

In view of these changes it seems that in the near future specialists will and should be required to prove their qualifications before being licensed to practice in their chosen field, and this is particularly true of surgeons, for perhaps here is the most abused privilege afforded the physician in that he is licensed by our state boards to be both physician and surgeon, and this seems to be all that is necessary to insure his competency in attempting the most technical abdominal operations. Can it be that this boldness is occasioned by the fact that in closing an abdomen, mistakes are securely covered? If this is not true, then why do so few general practitioners attempt to infringe upon the specialist in other fields? I can readily understand how one who specializes should render more efficient service, and I am quite sure most patients are beginning to realize this more and more, but the cost of such practice is prohibitive for a large number of our people and unless we can utilize this service by group practice I am afraid the increased cost incident thereto may be a boomerang and indirectly bring about the very thing we have been fighting, state or federal medicine.

It seems apparent that in the near future medicine will largely be practiced by groups of specialists, for it is only through such groups that efficient service can be rendered at a cost commensurate with the patient's ability to pay. However, this does not mean the elimination of the competent practitioner, but will be an avenue by which he may refer his patients for diagnostic study and advice as to appropriate treatment without the tremendous cost incident to having individual specialists examine them.

For one to be a specialist in the true sense it requires a knowledge of general medicine, as well as an intimate understanding of his chosen work. He must necessarily keep abreast with modern diagnostic procedures and be able to recognize the indications for, as well as the results of modern laboratory findings. To achieve this position a prolonged period of study and preparation is necessary, a period in which the labors are exacting and the material compensation most meager; however, if one is truly interested, this sacrifice should be of slight concern.

MEDICAL EDUCATION EXPENSIVE

Unfortunately, many of our young men today are willing to prepare themselves, but too often their efforts are offset by their desire to begin actual practice with an income comparable to those who have by years of effort established themselves. I am persuaded that this reaction is occasioned by the fact that they are required to spend a great many years in preparatory work as well as in medical schools laboring over subjects that are required, but have little if any bearing upon medicine. This reaction on their part is natural when one considers the enormous investment that is required today in obtaining a medical degree. It is authentically estimated that the minimum outlay of money for such an education is $28,000 and this figure is reached by allowing the individual common laborers' pay for the period he is in college and medical school.

If it is true then that such an investment is required for an M. D. degree, one can easily estimate the additional expense that is

necessary to specialize. It would seem timely that those who have to do with our medical education would earnestly attempt to make medicine more practical by offering a course that is in reach of ambitious young men of moderate means, leaving the more technical requirements for those who have time, money, and an inclination for such training. If such a plan could be adopted, I feel quite sure many men would avail themselves of this opportunity without expecting the same financial return that is required today, and too, this plan might offer some encouragement in reducing the high cost of medicine which today is one of the unsolved problems confronting us.

MEANING OF SURGEON

Since this paper is primarily concerned with the surgeon's responsibility, it might be well first to define the word surgeon. A surgeon must be one who inspires confidence not only in the patient but in his fellow physician. He must be a man who by years of study and preparation is qualified to make the proper diagnosis and do the most refined operative procedure. And this is not all. He must recognize and understand the preoperative treatment, for a lack of this knowledge often deprives the patient of a chance to live. Perhaps all of you have seen patients die because of the surgeon's failure to recognize postoperative complications, and herein lies one of his greatest responsibilities, for after all a most painstaking operation can be a failure by not appreciating the importance of the patient's aftercare. All too frequently the patient is entrusted to the care of an interne who may be willing but lacks the experience to recognize properly or treat serious complications.

Since the surgeon must assume the responsibility of the anesthetist as well as the entire operating room personnel, great care is required in selecting individuals who are trained for this work. This is particularly true of the anesthetist, for more and more we are appreciating the importance of the proper anesthetic and of its effect upon the patient's convalescence when properly administered.

The surgeon must possess the courage to refuse to operate upon another's diagnosis, and must rely upon his own training and years of experience in finally deciding this question. This courage must be a positive one in declining to participate in fee splitting, for it is recognized that this practice is pernicious in that the patient is sold to the highest bidder and the surgeon who indulges in this practice can be expected to do needless operations.

In this connection I might add that we as specialists should concern ourselves with the referring physician's material welfare, for in this transition period the public have failed to appreciate the family doctor's service in making a tentative diagnosis and assuming the responsibility of referring the patient. A word from the specialist would, in most instances, bring to the patients' attention their obligation to the physician and be the means of obtaining for him an adequate fee for the service rendered. In fact, I think it entirely permissible for the specialist to collect a fee for the referring physician so long as the patient understands whom it is for and this might be simplified by showing on the statement both the name of the doctor and the amount he is to receive. A plan of this kind would no doubt encourage the physician to refer his cases more promptly and be the means of saving lives in many instances. This plan differs from fee splitting as we know it because the patient is not kept in ignorance regarding who is to receive the fee.

RESPONSIBILITY OF THE SURGEON

While every physician has a tremendous responsibility if he is honestly attempting to render service, yet I think perhaps the surgeon carries a major portion by reason of the many qualifications he must possess.

In considering his responsibility I feel that his first duty is to the patient, and this can be briefly summarized: That he justifies in every way the confidence reposed in him. We owe

the referring physician a debt of gratitude and this can be best discharged by first rendering efficient service to his patient; and second, by affording him protection so long as the patient's welfare is not jeopardized.

Without modern hospital facilities it would be indeed impossible for the surgeon to practice efficiently; therefore, it is our solemn duty to assist the hospitals in every way and not impose upon them, as is frequently done, by collecting our fees and leaving the hospital without recourse or resource.

NEGLECTED RESPONSIBILITY

One of the most neglected responsibilities, not only of the surgeon but of physicians generally, is to their community, for after all we are endowed to be leaders but are willing to leave the affairs of community interest to political henchmen or those who are anxious to prey upon the public treasury for personal gain. And here again we are suffering because we have made little, if any, attempt to educate the public as to their responsibility in caring for the medically indigent. The time is auspicious for a concerted effort by organized medicine to acquaint the people of our respective communities as to this need and thereby temporarily at least offset the infringement of government medicine.

We have a combined responsibility to our community and to our associates in seeing that the young men are adequately trained, professionally and ethically, so that they can continue to render service after we have passed the period of usefulness, and, in so doing, we not only experience the genuine pleasure of seeing a young man develop into a master workman but profit tremendously by reason of his enthusiasm and desire to keep abreast with the latest developments.

Again, we should be mindful of our debt either to the state or to some generous philanthropy for our medical education, for without their aid none of us could have achieved our goal; so when extolling our accomplishments it might be well to reflect upon the fact that after all we are objects of benevolence.

Lastly, there is a responsibility to one's self, and to fulfill this properly, constant study is necessary together with an adherence to the principles of honesty in our dealings with others.

I sometimes wonder if we as members of an honored profession are awake to our responsibilities, or if we are to follow in the footsteps of the money changers and in our desire for riches so commercialize our profession that we too may be thrown from the temple.

It seems timely that the medical profession should reconsecrate itself to service, a service that recognizes the patients' rights first, last, and always, and in so doing we can be assured that medicine will continue its forward progress and not be molested by federal or state infringement.

WARTIME MEDICAL SERVICE

"The central and local emergency committees of the British Medical Association will be responsible during the war for the supply of medical personnel for the fighting forces and for the civilian population," the regular London, England correspondent of *The Journal of the American Medical Association* reports in the October 7 issue. "First aid posts have been set up with the intention of protecting casualty hospitals from a rush of minor and ambulant cases and of providing early treatment in districts where the hospital is some distance away. The function of the first aid post is (1) to treat and send to their homes those who are slightly injured and those suffering from nervous shock; (2) to arrest hemorrhage, relieve pain and so prepare persons who may be found to need institutional treatment that they can be transferred to the casualty hospital with the least possible harm.

"The Ministry of Health Emergency Service has recommended that as far as possible all persons with open wounds shall receive a prophylactic dose of tetanus antitoxin, which is being stored at more than fifty centers throughout England and Wales so as to be quickly available for use both at the first aid posts and at hospitals. Supplies of gas gangrene antitoxin are being held in the big centers throughout the country and will be available for surgeons whenever required."

OCULAR MOTOR ANOMALIES*

By WM. THORNWALL DAVIS, M. D.**
Washington, D. C.

THE difficulties of this problem are related particularly to the vertical deviations. The difficulties of diagnosis present a problem which in some cases appears to be insoluble. However, before proceeding to surgery it must be solved. This solution is less complicated when considering lateral deviations, but even here we meet with problems which are difficult of solution, principally when there is a complicating vertical imbalance. The most careful study and analysis must be made of cases with such complications, otherwise most embarrassing situations will be created, and the last condition of the patient will be more distressing than the first. Such analysis and diagnosis require an accurate knowledge of the anatomical and physiological characteristics of the ocular motor apparatus. Indeed, an extended study of the neuromuscular apparatus of vision, together with sound knowledge of the central nervous system, is essential. Armed with such study and knowledge, together with clinical experience, one may hope to diagnose a majority of the cases and thus decide what procedure to attempt.

There will always be cases which cannot be understood, and cases which cannot be cured. We may succeed in obtaining a satisfactory cosmetic result and must be satisfied with this. In such cases one may do harm by attempting to stimulate fusion or correct amblyopia. To do so may produce discomfort, diplopia, and what is worse, arouse a consciousness of one-eyed vision in the patient which may disturb him more than the motor anomaly of the eyes. This is indeed an unfortunate thing to have brought about, and the psychological state induced may have far-reaching effects. Having secured a satisfactory cosmetic result, one should carefully consider whether it is wise to attempt fusion training in the hope of securing binocular single vision.

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The longer one studies this complicated subject and the wider one's experience, the fewer cases one is satisfied to leave with a cosmetic correction only. Personally, I approach surgery of the elevators and depressors with much caution.

Concomitant vertical deviations of low degree may be corrected with prisms incorporated in the glasses. This method, however, is not applicable to the many youths who wish to become aviators. The following is quoted from the U. S. Army Air Corps; U. S. Navy Air Corps and Civil Aeronautics Authority:

U. S. Army Air Corps—Maximum hyperphoria allowed 0.50 D.

U. S.. Navy Air Corps—Maximum hyperphoria allowed 0.75 D.

Commercial pilots — Maximum hyperphoria allowed one D.

Where the hyperphoria is in excess of the above, applicants are not permitted entrance into these fields of endeavor. With aviation's ever mounting importance it becomes a vital question. Likewise, entrance into the other branches of the army, navy, and into the coast guard is barred by such muscle imbalances.

In civil life we may correct the error with prism glasses, but we have not cured it; we

*Read before the Eye, Ear, Nose and Throat Section, West Virginia State Medical Association, White Sulphur Springs, July 10, 1939.

**From the Department of Ophthalmology, George Washington University School of Medicine, Washington, D. C.

have only relieved the symptoms. Many young women will not wear glasses continuously. In children the wearing of glasses continuously is a real handicap, and ophthalmologists must make every effort to find a way to relieve them of this handicap if it be possible. In the case of the armed services and of aviation, this becomes a necessity and surgery offers us a way. In some cases orthoptic training will help. If the hyperphoria is of the essential variety, that is, if it be due to an anomalous position of rest, this assistance is of temporary benefit only, and when the individual is fatigued, ill, or suffering from anoxemia and the fusion thus weakened, the deviation becomes manifest.

DEPTH PERCEPTION

The requirements are strict for the military services regarding depth perception. The Howard-Dahlmann apparatus is used by the army. An average error of more than 30 m.m. is disqualifying. One may think of depth perception as the fourth degree of fusion. The causes of deficient depth perception hence, in a certain degree, are the same as for other degrees of deficient fusion; anisometropia, esophoria or exophoria and particularly hyperphoria. Squint which has only been cured cosmetically results in monocular vision, alternation or weak fusion. It is thus apparent how necessary it is that squints should be functionally cured by fusion training in addition to other measures. Without such fusion training the child is not cured, but only cosmetically relieved of his deformity. In later years he may be seriously handicapped by not having normal binocular vision. When the squinting child is brought under early and intelligent treatment, it is probable that he may be cured before attaining the age of six years.

Before resorting to surgery we must be assured that the hyperphoria is amenable to this form of treatment. Concomitant, paretic and pseudoparetic hyperphorias are the forms upon which surgery can be successfully done. Concomitant hyperphorias are best relieved by a guarded tenotomy. According to Bielschowsky's method a suture is passed through the tendon before it is severed. The tendon is then cut, but none of the lateral or fascial attachments are disturbed. The suture is then passed through the conjunctiva and a single knot is loosely tied. This permits of a certain degree of readjustment in the two days following. Frequently, however, the hyperphoria will be under or over corrected, in which case another muscle should be operated upon at a later date. Due to the complicated actions of the elevators and depressors, operations upon these muscles produce entirely different results than do similar procedures upon the adductors and abductors. The physiological action of the latter are uncomplicated; they act only to abduct and adduct the eye. On the contrary, the elevators and depressors have quite dissimilar actions in the different directions of the gaze and operations upon them produce complicated results. Hence, accurate knowledge of the function of each elevator and depressor is desirable and necessary; no less necessary is a complete understanding of the group or pair action of these muscles. It is thus apparent that surgical interference with the elevators and depressors is a difficult and complicated procedure and is not to be undertaken without complete and accurate knowledge of the functions of these structures. Nor is it to be undertaken until a meticulous study of the type of anomaly is made and an assured diagnosis arrived at. To attempt surgical measures upon these muscles without the above knowledge is to court disaster.

PARTIAL TENOTOMIES

I have not had satisfactory results with partial tenotomies of the elevators or depressors. The most satisfactory result in our hands has been a carefully performed tenotomy with one or two sutures through the tendon of the muscle and passing them through the stump of the severed tendon. The muscle may be adjusted to the position that we think is correct and only one knot tied

in the suture which is brought out through the proximal lip of the conjunctiva. The following day readjustments may be made either by tightening or loosening the sutures as the requirements demand. Even under these conditions the result is not always satisfactory since such delicate adjustments are necessary. It is most difficult to make them with sufficient exactness to secure the correction of a few degrees only of deviation. Unless one has attempted to correct a hyperphoria of one degree or less by surgical means, one will not realize the difficulties attendant upon such a procedure. I speak of my personal difficulties in securing such fine adjustments of the vertically acting muscles. Perhaps other ophthalmic surgeons have a better technique.

Bielschowsky's surgical procedure is the better method and lends a greater latitude to the results. O'Conner's cinch operation should be efficient for this procedure. I have been unable to cure concomitant hyperphorias of one to three or four degrees by any means. As before stated by fusion training one may relieve the symptoms. Incorporation of prisms in the glasses will accomplish the same result, but this is not curing the hyperphoria. When the military surgeon tests such an individual he breaks up the fusion and hence brings out the hyperphoria as it originally was.

DROOPING OF THE UPPER LID

Bielschowsky mentions the necessity of careful closure of the conjunctiva to prevent drooping of the upper lid, or the falling away from the eye of the lower lid. One has sometimes a disturbing drooping of the upper lid following recessions or advancements of the superior rectus. Personally I have had no falling away of the lower lid. The drooping of the upper lid has been temporary with but few exceptions. It may be simulated when there is a high degree of hyperphoria, and the hypophoric eye turns down as the hyperphoric eye fixes. Upon the correction of the hyperphoria this disappears.

In the typical uncomplicated paralyses, diagnosis is not so difficult. Much time should be given for the muscle to recover from the paralysis before attempting surgery.

INFERIOR OBLIQUES

Where a vertically acting muscle paresis is complicated by over action of the inferior oblique, myectomy of the latter muscle is indicated. One sees both inferior obliques in over action not infrequently and usually complicated by a convergent squint which may be of high degree. The picture presenting itself is thus a very marked convergent squint with the up and in shoot so characteristic of the over action of the inferior oblique. This up and in shoot is more marked as the eye is adducted since this is the position of the eye in which the elevating action of this muscle is at its maximum. This is due in the majority of cases to paresis of the superior rectus, according to Duane and White, and to paresis of the superior oblique, according to Bielschowsky. Important and interesting as it is to make a technically correct diagnosis, the surgical procedure is the same whether it be due to paresis of the superior oblique or the superior rectus. When myectomy of the inferior oblique is done in such cases, the result is usually quite satisfactory. In some cases the convergent squint disappears or is greatly improved and becomes amenable to cure by orthoptic training. In other cases further surgery is indicated to complete the cure. Two cases will be reported of this particular type to illustrate how in one case a cure of the convergent squint was secured by myectomy of both inferior obliques; and in the other, myectomy of the right inferior oblique and a Reese resection of the lateral rectus. It is of paramount importance that an assured diagnosis be made before operating upon the inferior oblique.

We must remember that a dissociated hyperphoria may be combined with a divergent squint so that the eye may turn out and up, or out and down; or with a convergent squint, in and up, or in and down. The dissociate fraction of the squint then occupies a

position of lesser importance. When such a condition exists, the lateral component should be corrected. If fusion can then be made strong by proper orthoptic training, the innervational portion will be corrected. In such cases obviously it would be disastrous to correct the vertical (or dissociated) component by surgery.

The treatment of the dissociated or alternating hyperphorias must be sharply differentiated from the hyperphorias due to muscular anomalies; that is, due to pareses and/or spasms of the elevators or depressors, or as Bielschowsky expresses it "an anomalous position of rest."

OPERATION NOT ADVISABLE

The dissociated hyperphorias should not be operated upon. If this is done the range of the vertical deviation will be transferred into the field of the operated muscle and a permanent squint will be produced. Such a case occurred in my practice years ago and it was long before I discovered the cause of the error I had made. The result was a permanent hypotropia which I could never correct to look as well as it did before the operation. After such an experience I never operated again on a patient with a "wandering eye." I did not then realize what this wandering meant. To paraphrase Dickens "better no eye at all than a wandering eye, dark master." Orthoptic training with regard to the fusion and improvement of the amblyopia, if such exist, offers the best hope of cure.

If the fusion and amblyopia can be sufficiently improved, the deviation will be corrected, with exceptional periods when the patient is fatigued or is not well.

In the pseudo paretic group of hyperphorias where there exists also a lateral deviation it would not seem greatly material whether the vertical or lateral component were first corrected.

At the risk of repetition it would be worthwhile again noting here that if we have made an assured diagnosis, if such be possible in every case, we may boldly proceed with our surgical treatment. The selection of the surgical procedure will not be difficult if we are quite certain of our diagnosis.

In the pseudoparetic hyperphorias should there be sufficient cosmetic deformity, we may proceed to correct it by operating upon the inferior obliques. We should remember that there is little or no disturbance of the level of the eyes in the primary position, and hence there may be no symptoms. It is my motto in eye muscle surgery "if you are uncertain what to do, do not do it." This saves your patient and yourself much grief. This form of hyperphoria may be complicated by a lateral deviation in which case the diagnosis is difficult, but under such conditions the surgical procedure it not so difficult. If the diagnosis is assured, my custom is to correct first the lateral deviation. When this is accomplished possibly the vertical component may be disregarded and thus the case made quite simple, which is a "consummation devoutly to be wished!"

Bielschowsky for the purposes of clarity of therapeusis recognizes two groups of hyperphorias. The first group comprises concomitant and paretic hyperphoria and hyperphoria due to over function of the inferior oblique, i.e., what I have named pseudoparetic hyperphoria for want of a better name. The second group comprises the dissociated vertical divergences.

The first group may be corrected by surgical means. The second should not be operated upon. Should the dissociated vertical divergence be complicated by one of the first group, surgery is indicated to correct the deviation belonging to this first group. The remaining dissociated hyperphoria may then yield to fusion training.

PARALYTIC LATERAL SQUINT

One may have the hope and expectation of correcting the squint so that single vision may be had in the central part of the binocular visual field. Surgery should be deferred until the paralysis has become permanent after proper treatment has been carried out in the

attempt to affect a cure. During this time it may be necessary to occlude the paralyzed eye to prevent diplopia. Such occlusion should not be continued longer than necessary because abolition of the fusion tends to aid the development of secondary contracture and according to Bielschowsky does not engender compensatory innervation. Shortening of the paretic or paralyzed muscle and recession of the antagonistic or sound muscle is indicated if the surgeon thinks the patient has the patience and fortitude to carry on. One finds not infrequently patients who will stop the treatment just when success is about to crown one's efforts which is unfortunate both for the patient and the surgeon. If the surgeon can succeed in giving the patient binocular vision in the central part of the visual field, anomalous positions of the head will be avoided which is obviously of much value. The patient will soon learn to turn the head instead of the eyes to maintain a wider field of binocular single vision.

In my own experience in shortening of the ocular muscles it is not possible to judge how much effect will result from such a procedure. There are too many variables. In operating for paralytic squint one should aim at an overcorrection as the immediate effect of the operation. If the surgeon seeks to secure all of the effect upon the eye by operating upon one muscle, an abnormal set position will result which is unfortunate. Hence, it is desirable by all means to distribute the desired effect between the two muscles when operating upon lateral paralytic squint.

UNGUARDED TENOTOMY

Where the paralysis of the muscle is due to an unguarded tenotomy, advancement and shortening of the paralyzed muscle is necessary. I usually do a Worth advancement and resection of the capsulo-musculo-conjunctival tissues. If a considerable overcorrection is secured and if the paralysis has not existed too long this is deemed sufficient. On the contrary, if the result of the resection and advancement is not an overcorrection of considerable degree a Bielschowsky or Jameson recession of the antagonist is done. In my experience one may expect a better result from such a case than where a muscle is paralyzed as a result of a nerve lesion.

PARALYSIS OF SUPERIOR OBLIQUE

Where there is a paralysis of the superior oblique a guarded tenotomy of the inferior rectus of the opposite or sound eye accomplishes the better results. Bielschowsky urges this procedure and in our experience it is quite justified. Acceptable results can be had only if the tenotomy of the inferior rectus is carefully done, and meticulously regulated by the method advocated by Bielschowsky. Tenotomizing the inferior rectus without regulating the effect by proper sutures is quite unsatisfactory in that an over effect is likely to be produced, and a drooping of the lower lid may occur. A long standing case of paralysis of the superior oblique muscle will probably result in an overaction of the inferior oblique of the same side resulting in a hyperphoria in the supper field of vision and the familiar inshoot of the eye when looking up. Myectomy of the inferior oblique is then indicated.

It is best to operate first upon the inferior rectus of the opposite eye and follow this with the operation upon the inferior oblique of the affected eye. The amount of correction when operating upon the inferior rectus can be regulated, whereas this cannot be accomplished in a tenotomy upon the inferior oblique.

The choice of operation in concomitant convergent squint is subject to many factors.

Accommodative squint should not be operated upon unless of very high degree. The results of such operations are not favorable since there is likely to develop a divergent squint for distance and a convergent squint for near. With the newer methods available for treatment of this kind of squint it would seem poor judgment to introduce surgery. There may be an anomalous position of rest, and also an accommodative factor. Such a combination might call for a recession of the

median rectus of moderate degree, particularly if the squint is more than 15 degrees of arc. This must be promptly followed by orthoptic training to dissociate the accommodation and convergence. Under such conditions the results are very acceptable.

I cannot too strongly urge that purely accommodative convergent squint should not be operated upon. The results will be unsatisfactory. There are exceptions to this rule, the principal one being a high degree of monocular squint. The longer the squint has been present the more likely is the case to require surgical intervention. Should a high degree of amblyopia ex anopsia exist and the angle of the squint be marked, surgery should be considered. Generally speaking, however, accommodative squint properly treated by a skilled orthoptist will respond very satisfactorily. This used to be the form of squint that gave us the most difficulty and was the most unsatisfactory. Since the more modern method of treatment and proper understanding of this neuromuscular anomaly, we have come to look upon it as one of the most satisfactory to treat. We look for quite a high percentage of cures. It is truly quite remarkable how responsive young children are to the proper psychological handling in this condition.

A monocular accommodative squint which has been neglected too long will of course have developed organic changes in the muscles and permanent shortening and stretching of the fascia. Obviously only surgery can cure such a condition.

TREATMENT OF ACCOMMODATIVE CONVERGENT SQUINT

Accommodative, as indeed all forms of squint, should be placed under treatment immediately upon the inception of the squint. Not to do so may condemn the child to loss of useful vision in the squinting eye and make the squint impossible to cure. A child who starts to school with squint goes to his undoing. It should not be allowed to happen.

If amblyopia exists total occlusion should be worn until the vision is 20/40 in the amblyopic eye. At this point it is practical to reduce the vision in the good eye to equal that of the amblyopic eye by means of scotch tape on the lens of the good eye or by other means of this kind. Chevasse uses a frosted lens which many ophthalmologists find very valuable. These lenses are so graded that the desired visual acuity may be secured. By using scotch tape, which is a transparent mending tape, one can get the same result with less expense. It has, however, the disadvantage of getting air bubbles under it unless it is placed on the lens most carefully, and even then bubbles are likely to develop several days later. The Chevasse glass is much better if the patient is willing to secure it.

LENS OCCLUSION

Transparent lens occlusion at this stage is thought to be desirable because it enables the accommodative patient to attain binocular vision most of the time, thus stimulating fusion. If total occlusion is continued too long in this type of case, the squint may become alternating, slowing down the treatment of dissociation of the convergence and accommodation.

In those who have learned to alternate, the progress is much slower. The patient finds it difficult to blur the images and straighten the eyes. He prefers to alternate. We have had several cases that have developed temporary false projection in the attempt to straighten the eyes. Therefore, it is felt that this factor should be watched very closely in occluding the accommodative squinter. If however, the amblyopia does not improve with the use of the Chevasse glass or scotch tape, it will be necessary to go back to total occlusion.

The patient is taught that he must keep his eyes straight at all times, even though the vision be blurred. Hyperopes of plus 4.00 or less are requested to go without glasses for distance, keeping the eyes straight and vision blurred for distance. In a few weeks and sometimes only days, the vision for distance begins to clear. The first lesson the

child learns is to be able to distinguish between clear and blurred vision; i. e., blurred means eyes are straight, clear means one eye is turning in. The child practices this on the visual acuity chart at six M. many times with the orthoptist until he understands and gets the "feel" of knowing every time he turns his eye in. It is very important indeed for the orthoptist to know whether he can do this correctly and careful tests must be made. Those who have learned to alternate, due to prolonged total occlusion, find it more difficult to straighten the eyes correctly. As I have mentioned before, a small percentage of these cases will have false projection when attempting to blur and straighten. We must make careful tests to ascertain whether the retinal correspondence be normal (when straightening the eyes) when the eyes appear straight with the vision blurred. First, place red and green goggles on the patient and have him fix on a light at six M. asking him to straighten his eyes at the same time. If he has a frank false projection he will have crossed diplopia. He may, however, be fusing the two lights at the expense of an eccentric retinal point. Therefore, do not rely on this test alone. The most important test is as follows: while the child is looking at the test chart with images blurred and eyes straight, cover one eye and see if the fellow eye moves out to fix or if it remains fixed. If there is no movement the macula is being used and the eye is straight. If the eye moves out to fix, you will know that it was not straight when both eyes were being used. Facial asymmetry, double epicanthus, and angle gamma, can make an eye look straight when it is not, so it is important to observe this test carefully. Cover each eye in this way. Do not cover first one eye and then the other since this breaks up the fusion; one is then merely bringing out the total angle of squint and the movement thus produced has no bearing on the above test.

If the patient is falsely projecting, how do we treat it? If it is not broken up at the beginning of the treatment it may become permanent. These cases are put on fusion exercises at the angle of squint so as to stimulate the two maculae to work together. Gradually fusion exercises are given to the position of orthophoria. Be very sure that the patient can straighten his eyes at orthophoria correctly on the synoptophore, using both maculae, before blurring exercises in the office and at home are begun again. It is not safe for him to attempt to blur without supervision for some weeks. We have had two cases that could not overcome this habit and so this type of treatment had to be abandoned.

Hyperopes of more than plus 4.00 are requested to go without their glasses two to four hours daily, as soon as they have learned to straighten the eyes without their glasses. As the cooperation, intelligence, age, the demands of near work, etc., all vary, the length of time the child is without glasses will also vary. The important facts to remember are, first, that the child should go without glasses as much as he can and secondly, he must form the habit of keeping his eyes straight. During the first stage of treatment, patients wear their glasses for all near work but they gradually begin to do their home exercises without glasses and hyperopes of approximately plus 2.50 or less, learn to discard their glasses entirely for near work.

TREATMENT AT HOME

The child is given a visual acuity chart for home use. If he cannot read, the picture chart or even large pictures from the five and ten cent store are used at six M. The mother sits facing the child so that she can watch his eyes every moment. She is instructed not to take her eyes from his. He straightens his eyes, without glasses, and perhaps can read only 20/200. The mother, using a piece of cardboard shaped like a paddle covers the right eye and observes whether the left eye moves out to fix; she repeats this on the other eye. He begins to read down on the chart as far as he can without squinting. From time to time the mother will cover and uncover the

eyes quickly, as described above, to be sure that he is not squinting.

Hyperopes up to plus 3.00 learn to read with both eyes straight and convergence relaxed down to 20/20 in a few months, as long as there is no amblyopia or high astigmatism. In the Central London Ophthalmic Hospital the average accommodative convergent squint takes six months to cure. Cases where the amblyopia is very stubborn take longer. It is axiomatic to note that a child cannot read 20/200 with both eyes if an amblyopia of 20/50 still exists in one eye. If he does read the 20/20 line the amblyopic eye is suppressing even though the eye does not appear to squint. If a patient can read 20/20 with both eyes straight without glasses there is no longer any desire or need for him to squint for distance.

CONTROL OF SQUINTING FOR NEAR

To control the squinting for near is more difficult. Bar reading with the glasses is first used at home for 15 minutes daily. The child is not permitted to bar read alone, except in rare cases of intelligent cooperation. The mother sits opposite the child holding the book against her. With the other hand, she holds his head so that no movement of the head is possible. When the child squints in his effort to clear the type and cannot straighten his eyes again, the mother drops her thumb in front of the good eye, giving the squinting eye an opportunity to fix. When the vision begins to improve for distance and bar reading can be done well with glasses, bar reading without glasses can be tried. The orthoptist must carefully check on the bar reading, seeing that the child and mother carry it out properly. It is one of the most important exercises in the treatment of accommodative squint but utterly worthless if not performed correctly. It is thus apparent that intelligent cooperation by the mother is a *sine qua non* in this form of squint particularly. The burden of the work falls upon her. This unfortunately rather limits this form of treatment since it can scarcely succeed unless the mother is interested, intelligent and sufficiently devoted to the interests of her child to give the energy and time to this time-consuming duty. Likewise the child must be sufficiently intelligent to grasp what is being done and cooperate with the surgeon, the orthoptist and the mother. Last and above all, the surgeon and the orthoptist must be earnest and capable in their work. Many cases will be failures due to deficiency in the above chain of factors, every link of which must be strong.

KEEP EYES ELEVATED SLIGHTLY

With the orthoptist facing the child, a book or a newspaper with type ranging from two-inch letters down to Jaeger I is held before his eyes, without glasses. Do not have the child look down to read but rather hold the book high enough so that the eyes have to be elevated slightly. It is easier for him to keep the eyes straight because of the tendency to diverge on looking up. The child reads or picks out letters with his eyes straight, starting from large type and reading to Jaeger I or II if he can. As he learns to dissociate his convergence and accommodation he will be able to read smaller and smaller print. From time to time it is wise to cover and uncover the eyes while he is reading to be sure that no squint is manifest. This can easily be done by dropping the paddle or piece of cardboard in front of one eye from above, in order not to obscure the patient's reading matter while this procedure is being carried out. Then let it drop in front of the other eye, noting carefully whether this breaks up fusion and produces a squint. As the control improves it is much more difficult to break up the fusion. Many times a child will be squinting very slightly which is not perceptible to the orthoptist, perhaps because of an epicanthus, so that the exercise is being done incorrectly. If there is any movement when doing the cover test it is necessary to go back to larger type until he reads without squinting. The child may say the type is so blurred he cannot read it; he is then asked to sit and look at it and

make an attempt to clear it, keeping his eyes straight. These tests and exercises on reading for distance and near are carried out in the office and also for half an hour daily at home.

The patient is placed before the synoptophore with the arms set at 0, with the hyperopic correction in the lens cells. It is necessary to correct the astigmatic error if it be large. The patient is asked to fuse at 0. He is not permitted to set the instrument at his angle of squint during the treatment and gradually work out to 0, unless it is found to be impossible to straighten the eyes for fusion at orthophoria. One rarely finds an accommodative squint whose fusion is so poor that this is impossible. If the patient is having difficulty, cut down the hyperopic correction to plus 1.00 D. He will find it easier to blur his images and easier to straighten the eyes because he will relax his accommodation and therefore his convergence. It is not enough to fuse at orthophoria with blurred images. Vision at orthophoria must be clear; constantly ask the patient whether the picture is "misty" or clear. If the picture is clear, divergence exercises are given with the correction in place. Still at balance, cut down the hyperopic correction plus 0.50 at a time, the pictures being kept fused clearly, until this can be accomplished without glasses. Then begin with the minus lenses, minus 0.50 D. using as high as minus 3.00 D.

NO CONVERGENCE DURING TREATMENT

Do not let the patient converge at any time during the treatment. It is, of course, necessary to see that the fusional convergence power is normal but it is best not to exercise this function, if it does need attention, until the patient is able to maintain steady fusion at orthophoria and has good fusional divergence.

The hyperopic correction is reduced for near work as fast as feasible; for example, if a patient is wearing plus 3.50 in each eye and can read print in the synoptophore at balance with plus 2.50 and can bar read perfectly with plus 2.50, the correction is immediately reduced. Perhaps two months later he may take another reduction of plus 1 D. The crutch for his accommodation and convergence ratio is withdrawn as fast as he learns to control these two functions.

The cheiroscope is used with the lowest possible hyperopic correction that will keep the eyes straight while drawing.

Patients should come twice weekly for office treatment until they have learned just what is expected of them and the desire to cooperate is firmly established. A weekly visit will then be sufficient, inasmuch as half an hour of supervised home work is done daily, and the child is exercising the dissociation of the convergence and accommodation at other times of the day.

CHOICE OF OPERATION

In the discussion of the choice of operation for concomitant squint it is taken for granted, of course, that previous treatment has been carried out. That is to say refraction, correction of existing amblyopia by patching or other methods, and orthoptic training. To neglect any of these steps in treating the squint is likely to render the result imperfect. Surgical intervention without correction of the amblyopia and securing fusion and stereopsis is cosmetic in effect only. Many cases cannot hope for more than a cosmetic result. Where intelligent cooperative parents bring their children early after the inception of the squint, the child is entitled to a functional restoration of his ocular apparatus and not merely a cosmetic cure. The parents are often discouraged by the advice of their family physician who advises waiting to see "if the child will not outgrow the squint" which is indeed unintelligent advice. The dishonest or untrained physiotherapist often carries the squint cases along for some time on so-called "muscle exercises" which he may believe to be orthoptic training. Not infrequently he renders the case all but incurable by fixating abnormal retinal correspondence and false projection or converting an accommodative monocular squint into an alternating one.

Operation having been decided upon, what factors decide the particular operation to be done? We must carefully measure the angle of the squint for distance and for near, accommodating and with and without correction. The convergence near point is taken. (Pc—measuring the nearest point of convergence; PcB—the angle of convergence.) The rotations are carefully studied. Note is made of the difference in the angle of the squint when the correction is worn; a large difference suggests a high accommodative factor, necessitating caution in surgical procedure.

MODIFICATION OF ACTION OF MEDIAN RECTUS

Modification of the action of the median rectus is selected as the proper operation if:

1. The squint is greater for near than for distance.
2. The convergence near point is five cm. or nearer.
3. Adduction is marked and abduction is lessened.
4. The prism convergence is high.

These factors indicate the convergence system is at fault and that the squint is due to an excess of convergence. It is imperative to study carefully the above factors and to make as many examinations as may be necessary to determine definitely the information required. Our preference is the Jameson recession where modification of the convergence is required. The number of mm. of recession done is determined by the angle of the squint, age of the patient and duration of the squint. The higher the angle of the squint, the longer its duration and the older the patient, the greater the degree of the recession. We do not do more than four to four and one-half mm. of recession as a maximum. In a young child, three mm. would be considered proper in a squint of 15 to 20 degrees of arc.

It is considered safer to recede one median rectus carrying on our orthoptic training in the interim, and do a recession on the other median rectus at a later date if this be necessary. Should this prove ineffective, a shortening of one lateral rectus may become advisable. Extreme caution should be used in shortening a lateral rectus after a recession of a median rectus or recti has been done. The result of a shortening under these conditions is all out of proportion to what one would expect, and a divergence may result.

One's judgment as to how much receding to do must be subject to modification as one proceeds with the operation. Jameson in his writing accentuates this, and his judgment is very sound. If the median rectus is large and taut, more of a recession is required. One may tell a great deal by the feel of the muscle after the squint hook has engaged the tendon. One gets the "feel" from experience, just as one gets the "feel" of his favorite fish when it strikes. When the sensation is of a taut stout muscle and the muscle itself is large and heavy, we know we should proceed with the recession, doing a generous amount.

On the contrary if the median rectus is found to be small, slack, and obviously a weakly acting muscle, a much smaller amount of recession is done or we may abandon recession altogether and do a shortening of the lateral rectus. As a rule with a greater degree of squint for near than for distance a Pc of five cm. or less and a high prism convergence, we will find a correspondingly strong median rectus, but this does not always follow.

SHORTENING OF LATERAL RECTUS

Shortening of the lateral rectus is advisable if:

1. The squint is greater for distance than for near.
2. The convergence near point is farther away than six to eight cm.
3. The adduction is not increased and abduction is normal or increased.
4. The prism convergence is low or normal and the prism divergence low or zero.

If the above symptoms are present it becomes obvious that the divergence system is at fault and that a shortening of the lateral rectus is required. It is thought, as in the case of the median rectus, that it is better to distribute the effect between the two, rather than

to do too much shortening of one muscle. We use the Reese resection or Worth's advancement and resection. Rarely do we use the latter in convergent squint. With the Reese resection we usually exercise four to five mm. of the muscle for a squint of 15 to 20 degrees. It is quite impossible to denote by scale how much of the muscle should be resected in a given case. So frequently the student will ask for such information. It cannot be definitely stated by rule of thumb how much resection or recession one should do to secure a definite number of degrees of correction of a squint. This can only be learned by experience and even this is fallacious. When after having studied the question carefully and done many hundreds of cases, one has a case that swings from a convergent squint of 35 degrees before recession to a divergent squint of 35 degrees following an operation, one does not feel that the surgical treatment of squint is an assured thing or upon a sound basis.

Nevertheless, I think we may say that a very high percentage of cases of convergent squint can be brought to a satisfactory conclusion by careful study and close attention to the progress of the case while the four steps are being carried out. A requisite is the assistance of a well trained, intelligent orthoptist, who should be a woman and have the understanding of child psychology. She should be patient and painstaking and honest. Rare qualities I admit, but there are such fine young women who will devote themselves to this really beautiful work.

DIVERGENT SQUINT

There are two types of divergent squint just as there are two types of convergent squint. If:

1. The squint is greater for distance than for near.
2. The prism convergence is normal or possibly increased.
3. The Pc is normal or at least not remote (greater than five cm.).
4. The prism divergence is greater than 8 D obviously the divergence system is at fault.

We are here dealing with a divergence excess. Given a divergent squint of 15 to 20 degrees recession of one or both lateral recti will usually give the desired result. We do not recede both muscles at one sitting for the same reason we do not operate upon both median recti at one sitting. There are exceptions to both rules. The convergence should be increased by proper orthoptic measures. While this may not sound logical, nevertheless it is helpful.

It may become necessary to do a shortening operation on the convergence system in addition to a double recession of both lateral recti in higher degrees of squint beyond 30 to 35 degrees if:

1. The divergent squint is greater for near than for distance.
2. The prism convergence low.
3. The Pc is remote.
4. The prism divergence is normal.

It is obvious that the convergence system is at fault and that a shortening or advancement of the median rectus or recti is required. We usually do a Worth or in lower degrees a Reese. In high degrees of divergence 35 to 40 to 50 degrees a Worth's advancement and resection with a Jameson recession is done. Over correction is sought. Care should be taken that the motility of the eye is not interferred with by too much shortening of the median rectus, and too great a recession of the lateral rectus. The effect should be distributed between the two eyes and at different sittings. Orthoptic training will be helpful as an adjunct.

The operations mentioned are the ones we do; others are just as good and perhaps better. It does not appear of particular moment what operation one does. The essential fact to be borne in mind is what type of operation is needed for each particular case and the underlying facts and principles which cause one to make one's decision.

DISCUSSION

Dr. Joseph H. Maxwell, Fairmont: The main thing we need in this particular type of work is the

mental hurdle involved. The thing that most eye men hate to do is muscle work. Few of us even do a routine muscle balance on the cases that we refract. If we overcome that mental hurdle, I feel sure that we can gain a good deal of information by careful study. When one thinks these things over superficially they seem so impossible that we give up trying; then when we study them carefully they commence to filter through and we begin to get somewhere in this most difficult art.

I am sure you have been interested in reading Bielschowsky's articles these last months, and I hope you have not had the experience that I have had of reading the first one or two and then giving it up because of the mental fog that resulted.

There is another important point in these cases. They are not all paralytic types; some of them are straight accommodative types. I think the most interesting thing that I learned this afternoon is that we can get away from glasses and away from operations that we have been doing in the past.

There are very few squint cases, except the monocular types of accommodative squint, which do not eventually come to surgery.

When a patient comes to us at the age of three, four or five years and can be cured with these new methods (which I confess I have not been able to succeed with yet, no doubt due to lack of perfection in technique), and we can get rid of glasses and avoid operation, that is very impressive.

Some patients ought to be glassed early. The earliest I ever glassed a squint, an accommodative monocular esotropia, was fourteen months. This baby soon commenced to cry for its glasses before it got up in the morning. As soon as a baby gets old enough to start exercises, we can look forward to doing away with the glasses.

The cosmetic effect resulting from surgery should be followed up by orthoptics. If it is not, you may lose the effect of your operation, and certainly just to straighten a pair of eyes cosmetically is not a cure and is not what we are after.

I should like to ask the essayist what he does with the old patient who comes too late for these newer methods.

We use the cheiroscope, and the stereoscope is the one that we find gives the most refined results. After you have done your operation you have a cosmetic result, a good result surgically, and if you have enough correction you follow up with the stereoscope; if not, first with the amblyoscope if you do not happen to have a synoptophore.

Dr. V. E. Holcombe, Charleston: Any effort to put the business of orthoptics on a rational basis is very much to be commended. Hitherto we have all been in a fog about it and I think that the precise and logical presentation by Dr. Davis is very much in order.

Another point should be emphasized, and that is the amount of harm that is being done by the multiplicity of eye exercising machines on the market. I think, as Dr. Davis said, they have fixed the error, and I think the facts are that about fifty per cent of cases of squint have abnormal retinal correspondence and of course any bilateral exercise is entirely out of order under those conditions. Caution should be exercised in the use of these eye training procedures, in order to avoid a lot of mischief.

Dr. Davis, closing the discussion: In order to dissipate the fog about orthoptics, may I say this: Its purpose is to stimulate fusion. That is all it does; it does nothing else. There is nothing occult about it at all. If you have a strong fusion it helps you to overcome various motor anomalies up to a certain degree. Obviously it cannot go beyond a certain degree, and the technique of it is all directed to this particular thing. Various orthoptists use various methods, all along the same line, but there is nothing very difficult about it and there is nothing occult about it. It takes a lot of time. It would seem to me doubtful if there were time for the surgeon to do it himself; at least he cannot carry it out very long because it takes about forty-five minutes to treat a case each time it comes; that is almost a necessity.

I began it in a small way. I got a young lady from Philadelphia who had had some little instruction in it. We just worked it up together. At the same time, she was doing other work in the office, and gradually we built the clinic up until now all her time is taken doing orthoptics. You can begin that way, and if you have an ambitious, intelligent young woman who will become interested in this work and study, you can begin at the bottom and slowly work up the clinic. It is no great expense. The only expense is the equipment, and you cannot very well do orthoptics without a major stereoscope,

I mean either the synoptophore or synoptoscope, or some similar instrument. That is a necessity, because otherwise you cannot know when you have abnormal retinal correspondence, and you may be doing just the wrong thing.

I should be very happy to see you at the orthoptic clinic in Washington. If I am not at the hospital, I should be very happy to see you at my private orthoptic clinic, and Miss Wells will be glad to show you what she is doing. She is going all day, and almost any time you come in you are likely to find her at work on a case.

Several of my colleagues here have spoken of the difficulty in reading Bielschowsky's articles. Bielschowsky is a highly scientific man and he speaks in scientific language. It is difficult to understand. I do not believe any man has ever written on squint any better. If you study the articles hard you can understand them.

Speaking of the cooperation of the family, if it becomes obvious in the inception of the treatment of the case that the family is not going to cooperate, I just tell them frankly they had better not come, there just is not any use fooling your time away, and their time, and annoying and fretting and worrying the child if they are not going to cooperate with you wholeheartedly.

Let us remember this: that when we do not use orthoptic training, fusion training, in the treatment of squint and treat it only surgically, we are not getting a functional cure. A functional cure is exceedingly important now. There are so many avocations and professions in which it is necessary for the individual to have normal binocular single vision.

I was asked what we do with older patients when they come with squint. If it is a monocular squint they will, of course, have amblyopia in that eye, and it is almost impossible to cure amblyopia after a patient is ten years of age; rarely can you do it after five or six. All you can do is get a cosmetic result, you cannot hope for anything else and there is just no use to try.

THE PROBLEM OF FEVER*

By F. R. WHITTLESEY, M. D.
Morgantown, West Virginia

It is unfortunate for us today that the simple diagnosis "fever" is one that is no longer acceptable. For a long time, of course, it has not been acceptable to the physician, and now due to the increasing interest in medical matters that the general public exhibits, the layman also is no longer satisfied with such a diagnosis. He wants to know what causes the fever and what can be done about it. This situation is unfortunate because there are still all too many patients who have fever that we cannot identify despite most thorough clinical and laboratory study.

A great many diseases are accompanied by fever, far too many for the memories of most of us. The list of infectious diseases alone is a long one, and fever is found in many diseases that are not caused by infection. Minot[1] has recently listed the various causes of fever as follows, not necessarily (as he says) in the order of importance: (1) Infections or infestations; (2) drug intoxications; (3) disease or injury of the central nervous system; (4) dietary errors or deficiencies; (5) obstipation; (6) diseases which speed up the body metabolism such as hyperthyroidism; (7) diseases which interfere mechanically with heat regulation, such as ichthyosis; (8) malignant diseases; (9) diseases of the blood forming organs; (10) certain cardiac and vascular diseases; (11) fraud. One might add to this list the condition of dehydration, not itself a dis-

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ease. Some of these groups would not often give much trouble in differentiation. The value of having such a list is that it helps one to remember all the possibilities. The present discussion will deal only with some of the aspects of the diagnosis of fever which is due to infectious diseases, in cases where the diagnosis is obscure, and neither history nor physical examination, even frequently repeated, give any definite clue as to the cause of the fever.

ACUTE FEVERS

Two main subdivisions may be made into acute and chronic cases. The acute fevers, though they may be severe, are not in one way as troublesome, because they do soon enough disappear, and the patient and his family will not have had time enough to become dissatisfied. The chronic fevers are more difficult.

Before discussing some of the possibilities and procedures let us consider the question, "What is fever?" There is no clear answer to this anywhere. The body temperature fluctuates throughout the day and is the resultant of several interacting mechanisms. The standard of 98.6 must be thought of as an arbitrary one. There certainly are people whose temperature is almost always below this level, and I think it is justifiable to assume that there are also people whose temperature under normal conditions is often above it. It is possible, then, that occasional cases of low grade chronic fever are the result of the individual having a thermostat that is set a little high. Such cases have been reported, and I have seen one which I believe falls in this category. Fortunately most of the time the fever that we have to deal with is definite enough, and accompanied too by definite symptoms, so that we know we are facing some disease and not a problem in thermostats.

The first moves in the investigation of any case are of course a thorough history and physical examination. Both, particularly the examination, will need to be often repeated. As to the history, it is seldom that one remembers all the possible infections and infestations, and close questioning on all possible exposures is needed. In addition to the common infections of a locality, all the less common and sporadically appearing infections must be considered. The need for repeated examination is obvious. It may take weeks for the appearance of some definitely diagnostic finding.

Next a study of the temperature curve itself, together with the pulse rate, may give a clue, though physical findings are negative. For example, typical malaria occurs occasionally in this state. There is the relative bradycardia of typhoid, the variable curve of undulant fever, and the characteristic curve of sepsis.

In infectious fevers the routine urinalysis and blood counts usually done are seldom of much diagnostic aid. The exceptions to this would be the finding of pus in the urine, or some marked abnormality in the blood smear. In general a variety of other tests must be done. The list of these is a long one, and unfortunately conditions often limit the extent of the laboratory studies.

INEXPENSIVE TESTS

There are some tests, however, that the doctor can do himself, easily and inexpensively. These are the skin tests, which include the tuberculin, the test for undulant fever, and the less frequently used tests for trichinosis and tularemia. It is difficult to evaluate the reaction to tuberculin except in infants and young children. When positive it indicates only infection at some time, past or present. It may be negative in the presence of definite tuberculosis. A case of obscure chronic fever which eventually proved to be due to tuberculosis was recently reported from the Mayo Clinic.[2] In this case the reaction to tuberculin was negative. Of course the variability of the tuberculin reaction in the presence of actual disease has been known for a long time. In connection with undiagnosed prolonged fever, then, the tuberculin reaction is of interest but not of diagnostic value, and

regardless of the type of reaction seen it is advisable to have x-rays of the chest taken. The undulant skin test is more useful, though it too is only an index of infection, past as well as present, and it too is occasionally negative in the presence of actual disease. However, it is generally admitted to be of diagnostic value in a patient with actual fever which is of uncertain origin, and it may be positive when the other tests for undulant fever are negative. The skin tests for tularemia[3] and trichinosis[4] are described as highly specific. I have had no experience with either one. I cannot leave the subject of skin tests without emphasizing my feeling that the grading of the reaction is of no value. A four plus means no more than a one plus. A four plus skin reaction may be the witness of a twenty year old healed infection, or of a mild or severe present infection. I think we should speak of positive or negative skin tests and use good judgment in interpreting their relation to the presenting illness.

Other diagnostic tests must be carried out in the laboratory. There are a great many tests to choose from, and these may be divided into groups (1) serologic tests, (2) blood smears, (3) bacteriologic studies, (4) x-ray and miscellaneous. Laboratories are near enough to most physicians. If this is not so, much material can be sent away to laboratories at a distance, to the State Health Department at Charleston, or to the National Institute of Health at Washington. The material that may be sent away includes the first three groups mentioned.

SEROLOGIC TESTS

Serologic tests exist for a number of diseases, and several tests can conveniently be done on a single sample of blood. The ones of value are for syphilis, typhoid and paratyphoid fever, undulant fever, tularemia and the typhus group. Positive agglutinations for undulant fever, tularemia, or the typhus group may begin to appear in the second week of illness. It is usually later than this in typhoid or paratyphoid fever. The Kahn or Wassermann tests are useful because obscure visceral syphilis may produce fever of considerable degree and duration. I had the opportunity of seeing such a case when I was an interne. It is easy to repeat serologic tests, and it may often be necessary. In any case of obscure fever multiple agglutinations should be done on each sample.

Blood smears are the means of identifying malaria, which occurs sporadically in this state. The smear, again, may show a marked eosinophilia suggesting an infestation such as trichinosis, or a marked lymphocytosis suggesting infectious mononucleosis. The various types of Schilling counts serve as an index of the progress or the healing of the disease, and are not diagnostic.

BACTERIOLOGIC TESTS

The bacteriologic tests that may be used are numerous, and only passing mention need be made of such obvious measures as the microscopic examination by smear and culture of any secretions or discharges, of sputum, spinal fluid, urine and feces, and of fluids obtained by aspiration. Sometimes biopsy with section studies or cultures of suspected tissue is done. The bacteriologic test which I wish to speak of at greater length is the blood culture. This is a test that can not be sent away any distance, and that if done at all must be done by a local laboratory. Sometimes the disease process is such that it would be difficult to get a negative culture, no matter how the blood was handled, but commonly enough it is very difficult to get a positive culture even though one is sure a bacteremia is present. So the most scrupulous care in the taking of a blood culture is necessary. Blood should be taken at a favorable time. If peaks of fever occur, the blood should be drawn on the rise or at the peak. Enough blood should be taken, I think not less than eight or ten c.c. per tube. The medium should be warm, and incubation started as promptly as possible. Then, of great importance, the culture should be kept long enough. Some of the organisms we seek are very slow growers,

or they may be present in very small numbers. To throw a culture away in two or three days and call it negative is ridiculous.

Of x-ray studies the most important is that of the chest. I think that in a case of chronic undetermined fever a chest x-ray is absolutely necessary, regardless of the lack of physical findings, or the result of the tuberculin test. There are few things more comforting to patient and physician than a negative chest film. At times x-rays of the abdomen are made with the idea of perhaps locating calcified nodes which might support a possible diagnosis of tuberculosis of mesenteric or retroperitoneal lymph nodes. I do not think that this could be of much diagnostic value, for the interpretation of either positive or negative findings would be too uncertain. Of other diagnostic films that could be taken I would like to emphasize good sinus pictures. Latent sinusitis can only be surely detected in this way, as a recent article in the *Annals of Internal Medicine* describes.[5] These films are said to be best taken after instillation of lipiodol, though we know that plain films will often suffice. Regardless of the result of the x-ray it may be desirable to have a nose, ear and throat specialist apply suction to the sinuses, using the Proetz displacement. Low grade sinusitis is extremely common in this state, and it can be present with no symptoms and no appreciable discharge. In a low grade chronic fever this condition must be remembered. I know of two such cases of low grade chronic fever in the practice of a friend of mine, both of which cleared up completely with vigorous treatment of the sinuses.

MISCELLANEOUS AIDS

Among other miscellaneous laboratory aids is the electrocardiogram, which may give evidence suggestive of rheumatic fever. Occasionally in this disease clinical evidence is extremely scant, and suggestive findings in an electrocardiogram would be valuable in helping to a diagnosis.

To sum up the question of laboratory procedures I would say that any case demands the thoughtful choice by the doctor of those procedures that seem to hold out the best hopes of an answer, and that, when a process of elimination must be gone through, the search be made first for those diseases for which some specific therapy exists.

Before presenting the summaries of several cases I must pay my respects to the sulfanilamides, which have made the treatment, if not the solution, of cases of obscure fever so much more satisfactory in recent years. We have better weapons now, and none of us are going to regret too greatly a diagnostic mystery if we are able to cure our patient.

SUMMARIES OF CASES

Case 1: (Reported in detail in WEST VIRGINIA MEDICAL JOURNAL, 1937.)

D. H., male, 19, student. The onset of illness was in September, 1936, with a cyclic intermittent fever, rising to 103-104 degrees, with eight paroxysms at two and one-half to three and one-half day intervals. The paroxysms were accompanied by chills, severe headache, and a maculopapular rash of sparse but general distribution. There was also mild arthritis which, with the rash, largely disappeared in the free intervals. After a total of three weeks of these cycles of fever the temperature finally remained normal and there were no symptoms. Several days later the patient suffered a two hour attack of delirium, and returned to the hospital. Almost daily for ten days he had severe convulsive seizures lasting from 45 minutes to two hours. All symptoms save nervousness and weakness then disappeared, and complete recovery took place. The laboratory studies were as follows: All urinalyses were negative. Stool examination was negative. Serologic tests for syphilis, typhoid and paratyphoid, undulant fever, and tularemia were negative. There was a partial agglutination in the Weil-Felix (for the typhus group) in 1:80 dilution on one occasion, and 1:20 dilution on another later. Spinal fluid taken in the febrile period was negative except for 18 cells. In the convulsive period the spinal fluid showed cell counts of 15, nine, and eventually five. The final diagnosis was fever of unknown origin, with the possibility that this was an odd case of Rocky Mountain spotted fever, on the basis of the Weil-Felix test.

Case 2: T. M., 21, male, student. The illness began in October, 1938, with weakness, sweats and fever. The patient went to bed two days later complaining of pain and soreness in the neck muscles. His fever was irregular, with a daily or twice daily rise to 103 or 104 degrees, descending at times to normal. There were no chills. On the tenth day the temperature became normal and the patient made a complete recovery. Physical examination was repeatedly negative with the exception of moderate tenderness of the muscles of the neck and lower back. Laboratory studies were as follows: Urinalyses were negative. Blood smears were negative. Blood culture was negative. An x-ray of the chest was negative. The Kahn was negative. Nine days after onset there were negative agglutinations for typhoid, paratyphoid, undulant fever, tularemia, and the typhus group. The spinal fluid showed a trace of globulin, and 20 cells chiefly lymphocytes. Sulfanilamide totaling 360 grains was given in three days, but seemed not to influence the fever, which continued for two days after the drug was stopped. The final diagnosis was fever of unknown origin. The increased spinal fluid cell count suggested the possibility of some disease of the central nervous system, but there were no neurological signs or symptoms, except possibly the sore and tender muscles of the neck and back.

Case 3: R. D., 20, male, student. The onset of illness was in October, 1938, with general malaise, soreness of joints and muscles, and slight chills. The range of fever was to 102-102.5 degrees. Usual treatment for influenza was given. The fever continued, however, and five days after onset a scattered red blotchy rash appeared, maculopapular and tender. General examination was otherwise repeatedly negative. The urine was normal, as was the blood smear. On the eighth day all the above mentioned serologic tests were negative. An x-ray of the chest was negative. Full dosage of sulfanilamide was begun on the twelfth day, and continued for three days, though the fever disappeared after two days of the drug. The rash faded at the same time. Recovery was complete. The final diagnosis was fever of unknown origin.

Case 4: M. G., 21, female, student. In October, 1938, the patient fell ill with fever, malaise, and a mild arthritis of one ankle. No record of the temperature levels at that time was kept, but the fever seldom rose over 100 degrees, was not continuous, and the symptoms were never severe. A diagnosis of rheumatism was made. In December clinical improvement occurred, and the fever disappeared. Early in January, 1939, the fever came back, accompanied by malaise but with no other symptoms. When I first saw the patient on February 8, 1939, the temperature was 102 degrees, and from that time on, the curve showed practically daily elevations to 102-103 degrees. There were occasional sweats, but no chills. In the fall of 1936 a tentative diagnosis of rheumatic heart disease had been made on the basis of a soft blowing systolic murmur at the mitral area, with a questionable history of mild arthritis. Moderate limitation of activity was recommended at that time. The examination on February 8, 1939 was negative save for unquestionable rheumatic heart disease of the mitral valve, evidenced by an apical systolic thrill, and harsh loud murmur. The question arose as to the cause of the fever, whether it was rheumatic, or due to superimposed subacute bacterial infection. Repeated search for embolic phenomena revealed none. However, a blood culture, taken February 12, 1939, yielded a streptococcus viridans after two weeks' time. Interestingly enough the first detected petechia appeared on the same day that the blood culture was reported. The differentiation in such a case is of much prognostic importance. Certainly this blood culture would have been negative if it had been kept only a few days. Of much interest in this case also was the remarkable effect of sulfapyridine. Thorough dosage with sulfanilamide produced no benefit, but after two days of sulfapyridine the temperature came to normal and stayed down, on a dosage of ultimately only twenty-two and one-half grains daily. When the drug was stopped the fever returned in a few days time, but was again brought to normal in two days by resumption of sulfapyridine. Occasional slight rises have occurred in the past three months. The eventual outcome is of course entirely problematic. However, the relief from fever has allowed the patient to return to a normal existence, to gain a lot of weight, and to feel quite well again. Unfortunately on July 1, 1939, a brief exacerbation occurred with fever rising to 103 degrees and an Osler node in one finger.

Case 5: Female, 72, retired. The illness began late in October, 1937, with weakness, anorexia, occasional sweats, and slight chest pain. Her past

history was negative save that she had recently come from rural Wisconsin, where for a week or so she had occasionally drunk raw milk. Examination showed a temperature of 101 degrees, a pleural friction rub at the left base, and several small superficial skin ulcerations in the right groin without adenopathy. The fever continued practically throughout the illness, which lasted for four months. The range was to 102-103 degrees, and there were at times intervals of no fever. The course was marked by recurrent mild pleurisy, there were usually râles to be heard over one of the lower lobes, and there was cough which at rare intervals produced a blood-tinged sputum. The skin lesions in the groin never completely healed, despite a variety of treatments, some of which were suggested by a surgical consultant. Repeated physical examinations were negative save for the findings noted. Eventually the patient began to go steadily downhill, and died on March 15, 1938. Laboratory studies showed the following. Several urinalyses were negative. Blood cultures were twice negative. Blood smears were negative. Several smears and cultures of the skin lesions showed only acne bacilli, and colon bacilli. An x-ray of the lungs was negative. Sputum examination was negative. Agglutination tests for undulant fever, tularemia, and the typhus group were negative. A skin test using .1 c.c. of brucella vaccine was positive. The diagnosis made was undulant fever, which was the justifiable clinical diagnosis, and the positive skin test supported this. Administration of brucella antiserum brought no benefit. Non-specific vaccine therapy was also useless. Sulfanilamide should have been tried. I had not seen at that time any reports on its value in this disease, and do not know that a final judgment as to its usefulness can yet be made. A postmortem in this case was done, but did not give any positive diagnostic findings. Undulant fever does not give any constant or characteristic postmortem picture. Considerable changes may be found, or there may be no lesions at all.[6] In this case the only finding was in the lung, where a terminal bronchopneumonia was present superimposed on a non-specific subacute pneumonitis of not very great extent. Sections of the skin lesions showed only chronic inflammation.

Case 6: W. H., 38, female, housewife. In the fall of 1938 the patient contracted a severe cold and bronchitis. Several exacerbations occurred, with low grade fever. Periods of normal temperature intervened, with remission of symptoms. After Christmas, 1938, the fever and symptoms returned and continued, with the temperature ranging between 100 and 101 degrees. In January, 1939, the cough and nasal discharge steadily grew less, though the fever was unchanged. It seemed evident in February that some other explanation for the fever was necessary than the bronchitis and sinusitis which had practically disappeared. Physical examinations were repeatedly negative. Urinalyses, blood counts, and blood smears were negative. An x-ray of the chest showed no pulmonary disease, and plain films of the frontal and maxillary sinuses were also negative. Blood culture was negative on one occasion, and agglutination tests for typhoid, paratyphoid, and undulant fever were negative. A skin test for undulant fever had been done in the summer of 1938, at which time it was negative. As no opportunity for infection had occurred since that time, the test was not repeated. Suction of the sinuses was done twice, using the Proetz displacement. No pus was found, and no improvement resulted. A thorough trial with sulfanilamide produced no effect on the fever. A troublesome tooth was x-rayed, and though not much evidence of disease was seen, the tooth was extracted, but with no benefit. Fleeting pain in the precordial region began early in March, and suggested the taking of an electrocardiogram, even though the examinations of the heart were always normal except for some increase in the rate. The record showed definite flattening of the T wave in lead one, diphasic T waves in leads two and three, and a small inverted T wave in lead fourF. These changes were interpreted as being the result of some toxic effect on the myocardium. A repeat record on April 6, 1939, a month later, showed more normal looking T waves, though there appeared to be slight depression of the ST segment in the three standard leads. The striking change was the presence of a marked prolongation of the P-R interval, up to .26 second. As the upper respiratory infection had entirely cleared by this time, it seemed reasonable to ascribe the fever and the electrocardiographic changes to a low grade rheumatic fever. Steady improvement in the electrocardiogram took place, the partial block disappeared, and by the end of May the record was back to normal. The fever at this time began to abate, and a month later was seldom above normal.

SUMMARY

There are many different conditions that may produce fever. We are fortunate in having a variety of useful diagnostic tests which we may apply in the study of fevers that appear to be due to infectious disease. Nevertheless, even with the use of all methods of study, the differential diagnosis of infectious fever is often a difficult, and sometimes an unsolvable problem.

DISCUSSION

Dr. Oscar B. Biern, Huntington: Dr. Whittlesey said we were no longer justified in diagnosing influenza uncomplicated by endocarditis, etc. I want to remind you that influenza may be an acute disease lasting only a few days or a chronic disease lasting weeks or even months, and the diagnosis of influenza at times is justifiable.

One test he failed to mention which I believe to be of great importance is the sedimentation rate that I have talked about *ad nauseum*. I believe in many of these cases the sedimentation rate is of value, especially in those supposed cases of rheumatic fever. I do not believe we are justified in waiting on electrocardiographic changes which, in my opinion, have been inconsistent and of little value in the diagnosis at least of early rheumatic fever.

One other laboratory procedure that I think would be of value is the reticulocyte count, because disturbance of the hemopoietic organs is frequently accompanied by changes in the reticulocytes.

I believe that the flat chest plate is often of little value in diagnosing the chronic case of fever, and many times if we use an opaque substance in the chest we will be able to pick up a bronchiectasis or bronchigenic carcinoma, at times even Hodgkin's disease, that otherwise would not have shown on the flat plate. I do not think we are justified always in calling a chest plate negative unless we have done some other contrast media along with it.

Sulfanilamide, I believe, has delayed the progress of medicine perhaps fifty years because we are no longer attempting to diagnose our cases; we immediately give them sulfanilamide and if their temperature comes down to normal and their symptoms clear up we are happy. I want to remind you that sulfanilamide may cause a fever, and I have seen several cases in which when the drug was discontinued the so-called unexplained fever disappeared.

One of the doctor's cases lasted eighteen days. I think the period of observation is too short in that time to have made a definite diagnosis of anything. In Case 2, the one with the cells in the spinal fluid, I think the diagnosis of lymphocytic meningitis is quite compatible with the findings. Dr. Ashton and Dr. Sheppe have reported several such cases in the literature.

Dr. W. M. Sheppe, Wheeling: I have been very much interested in the matter of diagnosis of undulant fever. Dr. Whittlesey spoke of the use of both the agglutination reactions and skin tests. I have come to the conclusion that for practical purposes agglutination reactions might almost be discarded. I do not know what the actual percentage of positive reactions is in a given number of cases, but it must be very low. We feel that a negative agglutination reaction for undulant fever means no more than a negative sputum in a suspected case of tuberculosis. We do feel that the skin testing is of a great deal more value in solving these difficult problems of unexplained fever. We use two different substances. One is an indulant fever vaccine or suspension of organisms which is somewhat inclined to give non-specific reactions. The other, I believe Dr. Whittlesey mentioned, is brucellergen. In cases in which we rather strongly suspect the presence of undulant fever, either past or present, we have been inclined to dilute the brucellergen to 1:10, due to the extremely severe systemic reactions which may be given with a positive skin test to brucellergen. A certain number of patients have been greatly incapacitated for several days with severe aching pains, high temperatures, general malaise of rather an alarming character, so we are inclined to make a preliminary examination with the 1:10 brucellergen, and we believe that the response of the individual to that dilution, if it can be clinically significant, will be quite satisfactory.

There are one or two other causes of obscure fever which I believe deserve mention, realizing, of course, that the essayist could not possibly have included all possible causes of fever in his discourse. He did mention malignant disease. I think particularly of the liver and of the kidney. I have known a number of instances which have baffled the diagnostic ability of a great many men over a period of time and eventually at the postmortem table or elsewhere turned out to be malignant disease of the

kidney, particularly hypernephroma, or an unexpected malignant disease of the liver.

There is a third entity which we might mention in passing, namely, a mild type of hepatitis and cholangeitis occurring in younger individuals with gross foci of infection, particularly in the tonsils. We have seen five or six such individuals with long continued, unexplained fever and chills, malaise, which eventually turned out to have a mild hepatitis or cholangeitis which we believe to be secondary to a very gross infection somewhere, usually in the upper respiratory tract.

Finally, I would like to call attention to the presence of fever in diabetic coma. This is not a chronic disorder, it is true, but it occurs enough times to be confusing if the diagnosis of the particular situation is in question. A certain number of comas, particularly in the younger individuals, instead of having a very low temperature will have an increased temperature and an increased leukocytosis, and I think this should be watched for and considered as one of the possible signs and symptoms of coma in the young individual.

Dr. Walter E. Vest, Huntington: I want to call attention to one cause of fever that might be considered of unknown origin, with which we had experience in Huntington a year or two ago. Most of you gentlemen know Dr. Francis Scott of Huntington. He had a temperature that persisted more or less constantly for over a year and no one was ever able to make a diagnosis until he had a rupture of a solitary abscess of the liver which turned out to be amebic in origin. With proper treatment of his amebiasis he recovered entirely and has had no trouble since. I just call your attention to the fact that you may have a very long temperature due to amebiasis.

Dr. P. A. Tuckwiller, Charleston: I rise to the defense of the agglutination test in tularemia. This past year in West Virginia there were twenty-five cases that were tested in the state laboratory; we had a collection of five in Charleston, in all of which we had positive tests. Two of the cases were my own. At first we got negative reports. We discovered that we were using old serum. We got some new serum from Washington and the result was that positive tests were obtained in all the five cases that we had in Charleston, and, as I say, there were twenty-five throughout the state, most of which were confirmed clinically.

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RISKS TO FOOTBALL PLAYERS

The sight of aching, bandaged high school football players, gingerly sliding into their classroom seats on Monday morning, is rapidly being relegated to the limbo of the past.

Alfred E. Parker, Berkeley, Calif., in *Hygeia, The Health Magazine* for November, says that not only is the game becoming less dangerous but its importance as a part of school life is being seriously challenged. "The revolt against American football has gone far beyond a criticism of the dangers of the game," he says. "Attempts have even been made to eliminate football entirely from high school and college sports programs."

Since the adoption in 1932 of interscholastic football rules by the National Federation of State High School Athletic Associations, there has been a growing interest in revision of the game to fit the needs of high school students, who formerly followed the rules set down for college players.

Examples of rules which have improved the safety of the game include elimination of the flying tackle and the flying block and regulation of the kickoff, tackling, the forward pass, the returning of punts and blocking.

Adoption of a new type of game, six-man football, has helped to solve the problems connected with this sport in many schools. Certain rules have helped to reduce injuries. For example, the rules provide that all players be eligible for forward passes, that they must wear canvas shoes with soft rubber soles and that the playing time be decreased to ten minutes per quarter.

The Portland (Ore.) High School Athletic Association has adopted several important rules regarding football. All boys out for the football team must file with the principal of the school an athletic permit signed by their parents. They must also pass a physical examination before they are permitted to play. Teams are classified according to age, height and weight, a regulation which makes possible competition between boys of similar physical ability.

CONCENTRATED OXYGEN AS A THERAPEUTIC AGENT*

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SINCE the discovery of oxygen by Priestley, practical applications of it have been found in all fields of science. All of these applications have been beneficial to mankind in some sense. No application, however, has been more helpful than that which concerns man directly.

It is my purpose to present some of the more practical uses of oxygen in the fields of medicine and surgery and to dwell particularly on a safe, efficient and economical method of administration which hitherto has been impossible. To mention and credit all who have been responsible for the present status of oxygen as a therapeutic agent is not the function of this paper.

Regardless of how simple an operation may be, the surgeon is always faced with the possibility of some complications. The likelihood of complications increases in direct proportion to the seriousness of the operation. It is natural, therefore, that in the best interest of the patient, the surgeon must be alert to evaluate those methods which are brought forward to prevent certain complications, as well as those which can be and should be used in direct therapy of a complication when it does arise.

It may be well to state that no measure ever should be propounded as a panacea. The true value of any therapeutic measure can be determined only by its judicious use. What is of value in one case may be of little worth in the next and seemingly similar case. Thus it is with oxygen therapy; one patient may be able to cooperate well and to tolerate its administration through a mask without difficulty and the next patient may do better in an oxygen tent with a lower concentration of oxygen than is possible on administration through the mask.

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PRINCIPLES OF ADMINISTRATION

Experimental evidence reveals that the administration of 100 per cent oxygen increases the amount of oxygen carried by 100 c.c. of blood from 20 to 22 or 23 c.c., or an increase of 10 to 15 per cent. Oxygen is borne in the blood in two states: (1) a small amount in simple solution in accordance with Henry's law of solution of gases in fluids, and (2) a much greater amount in chemical union with hemoglobin.

Bohr, in 1905, showed that 100 c.c. of blood standing at body temperature contained 2.2 c.c. of oxygen when exposed to one atmosphere of pure oxygen; this quantity of oxygen is about eight per cent less than water contains under similar circumstances. In the alveoli of the lungs, the quantity of oxygen present is 14 per cent of an atmosphere of oxygen but in the arterial blood it will be at only 13 per cent of an atmosphere, thus under what may be termed normal conditions, 100 c.c. of arterial blood of the body will contain 0.3 c.c. of oxygen in simple solution.

In chemical combination with hemoglobin, 100 c.c. of blood, completely saturated, will contain about 20 c.c. of oxygen, but under ordinary respiratory and circulatory conditions, the hemoglobin is only 96 per cent saturated. Therefore, 100 c.c. of mixed

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arterial blood under such conditions would contain 19.2 c.c. of oxygen or a total oxygen content with that in solution of 19.5 c.c.

When pure oxygen is inhaled, the capillaries of the alveoli are exposed to an oxygen tension of 673 mm. of mercury (760 mm. less 47 mm. for water vapor and 40 mm. for carbon dioxide) and as a result the hemoglobin will approach much more nearly complete saturation, or 20 c.c. of oxygen per 100 c.c. of blood. Likewise, that quantity of oxygen in solution will increase from 0.3 c.c. to nearly Bohr's figure of 2.2 c.c. of oxygen. The arterial blood during the administration of pure oxygen then will contain close to 22 c.c. of oxygen per 100 c.c., or a rise of about 10 or 15 per cent. This, for our purposes, is known as supersaturation.

The amount of supersaturation will depend on still other factors, however, such as the hemoglobin content of the individual's blood, on the rate and depth of respiration, the rate and total volume of blood and the alveolar carbon dioxide tension.

Under usual conditions of health the total increase of oxygen in the arterial blood can be variously estimated as between 10 and 15 per cent. Naturally, in conditions, such as pneumonia, asthma and constriction of the trachea, the percentage increase of oxygen content is much higher after administrations of pure oxygen.

RATE OF CIRCULATION

To aid further in the understanding of oxygen in the human body and the reasoning behind its administration in both medical and surgical cases, the rate of circulation must be considered. Under normal conditions, as the blood passes through the capillaries, approximately a third of the oxygen is removed; thus, the venous blood will be about 60 per cent saturated; at this degree of saturation the oxygen tension in the capillaries is about 35 mm. of mercury.

With a decrease in the rate of circulation, the blood may give up as much as 80 per cent of its oxygen, rather than simply a third; as a result, venous blood then will be 20 per cent saturated rather than 60 per cent, and the oxygen pressure in the capillaries will be 14 mm. in place of the normal 35 mm. of mercury. When such a condition occurs, the administration of concentrated oxygen can readily be appreciated. The arterial blood will contain 12 per cent more oxygen; an increase of 50 per cent in oxygen tension in the capillaries and a correspondingly greater increase in oxygen tension in the tissues occur.

THE USE OF HIGH CONCENTRATION OF OXYGEN

General slowing of circulation may well occur in certain cardiac conditions, or from shock, or local slowing may occur after injury with local trauma, after certain surgical procedures, in the presence of confined pathologic conditions, such as indolent ulcer or other conditions. Certainly, observers who have been interested, I believe, are of the opinion that the administration of oxygen has increased the rate of wound healing after certain surgical procedures. Understanding of the aid given by high concentrations of oxygen becomes apparent with an appreciation of the factors of oxygen distribution in the body. It is interesting to recall that Hill, in 1925, devised the oxygen tent, not for the purpose of relieving the anoxemia of pneumonia but to treat edema and chronic ulceration of the leg; his tent was used extensively after the war to accelerate the healing of old war injuries that had not responded well to the more usual types of remedies.

Surgical shock or, more correctly, perhaps, the simple term "shock" is a symptom complex of varying degree, caused by a compensatory mechanism run wild, the end result of which, according to Blalock, is essentially massive bleeding into the tissues. The usual therapeutic measures of heat, elevation of the legs and supportive drugs may logically be given the assistance of concentrated oxygen. This is demonstrated by experimental studies of the effect of heat on the oxygen pressure in the tissues after the administration of concentrated oxygen. Heat which may stimulate

both general and local blood flow can increase the efficiency of oxygen distribution by a most appreciable percentage.

I would be remiss if I did not credit Fine and his co-workers for the splendid adjunct to medicine and surgery that followed their work with high concentrations of oxygen in intestinal obstruction. The rationale of this therapy is the elimination of nitrogen from the obstructed bowel by upsetting the nitrogen balance of the body. The nitrogen balance is upset by eliminating nitrogen from the inspired air. At the clinic we have found that the administration of concentrated oxygen in combination with either the Wangensteen or Miller-Abbott tube method of intestinal decompression has proved even more valuable than oxygen used alone and, consequently, masks have been constructed to admit the nasal insertion of these tubes. In dealing with intestinal obstruction, the warning, not to depend too much or too long on non-surgical measures, must be stressed. It is easy to be lulled into a false sense of security.

At the operating table, the debatable question as to whether a partially obstructed segment of bowel should be resected occasionally can be determined by the administration of concentrated oxygen from the gas machine. In instances in which the color of the bowel improves satisfactorily following such administration, the value of continued administration of concentrated oxygen after operation is evident. It is equally true that a strangulated segment of bowel which under such a therapeutic test does not return to viability and satisfactory color should not be replaced within the abdominal cavity.

GASEOUS DISTENTION

The distressing gaseous distention which may occur after some surgical procedures also can be beneficially treated by administering 100 per cent oxygen. Many patients obtain relief from gas pains which all too frequently complicate an otherwise normal convalescence.

The complication which occasionally follows spinal anesthesia is headache. The methods to combat this unfortunate situation are legion. We recommend the inhalation of high concentrations of oxygen simply because some patients have had marked relief of headache by its application.

For septicemia, gas gangrene and peritonitis, we advise that a high percentage of oxygen be used as an adjunct to other therapeutic means. The logic is that the anaerobic organisms at least are attenuated and become more susceptible to other measures of direct attack or they succumb more readily to the natural defense mechanisms of the body. The results obtained in cases of this nature at the clinic justify some such explanation. Further research on the subject from a bacteriologic standpoint is essential and is in progress.

METHOD OF ADMINISTRATION OF OXYGEN

A few words regarding the method of administration of oxygen by means of one of the masks developed by Boothby, Lovelace and Bulbulian may be in order. There are two types of mask: the one for nose breathers which perhaps requires a bit more cooperation on the part of the subject, in turn is more comfortable, and leaves the mouth free for food or conversation; the other is designed for so-called mouth breathers. Many patients unconsciously fall in this latter category during sleep. This type of mask is used also for others who because of the nature of their illness cannot cooperate sufficiently for efficient use of the nose mask alone.

Some individuals do not tolerate well either type of mask and, of course, these should be placed in an oxygen tent if oxygen is deemed a necessity. Usually, however, when the mask, properly adjusted and attended to, proves to be incompatible to the patient, the same difficulties will be encountered in the tent. The value of oxygen, in other words, may be more than offset by the untoward effects incident to its administration. The importance of careful supervision by the doctor or nurse cannot be overstressed, for otherwise blame may be placed falsely on an efficient, safe and economical method of giving oxygen through

the mask. Many valuable medical and surgical therapeutic adjuncts have been discarded in the past not because of lack of merit but because of injudicious condemnation. Careful adjustment of the mask, its occasional removal, the washing and powdering of the patient's face and careful replacement of the mask, with a thought for the subject's comfort, are not the least of the factors which will minimize complaints and allow for greater efficiency.

AMOUNT OF OXYGEN GIVEN

The reservoir-rebreathing bag is of such a size that it will contain slightly less than the volume of air contained in one expiration. If 100 per cent oxygen is being given, the flow of oxygen should be sufficient to prevent complete collapse of the bag on respiration. To administer 100 per cent oxygen in inspired air, all the three port holes in the connecting device on the bag are closed and the valve which controls the flow of oxygen from the tank is set so that the flow meter registers that six to eight liters, or even more, are being delivered per minute. As the subject becomes accommodated to the oxygen, the rate of flow can be reduced.

To supply a quantity of oxygen through this mask equivalent to that supplied by an efficient tent, two of the three port holes in the connecting device on the bag are opened and the rate of oxygen flow from the tank is set at four liters for a large person, and somewhat less for a smaller one. It is to be noted that when the port holes are open, the rebreathing bag may collapse on inspiration without incident, because additional air then passes to the lungs through them. When the port holes are closed, as is necessary for administration of 100 per cent oxygen, collapse of the bag on inspiration must be prevented simply by increasing the flow of oxygen.

At the clinic we have now given concentrated oxygen to more than 800 patients. No irritating effects have been noted in the lungs. We feel, however, that the concentrated form should be administered only so long as it seems beneficial. A period of four days is about the limit; by that time, and usually long before, the concentration of oxygen can be cut down or its administration discontinued.

For too long, oxygen has been looked on as a therapeutic measure of last resort. It has been my practice to give all patients who have undergone an extensive surgical procedure 100 per cent oxygen immediately after operation. This procedure, in conjunction with transfusion, unquestionably has been beneficial to these patients. Although it is impossible to say in what percentage such measures have been lifesaving, convalescence in this group has been more comfortable and satisfactory from the patient's standpoint—a surgical objective which should not be neglected.

From a surgical standpoint, the use of concentrated oxygen should be thought of not only as an additional therapeutic measure to treat the unfortunate complication but also as a preventive measure that adds to the postoperative satisfaction of patient and surgeon alike.

DISCUSSION

Dr. Russell B. Bailey, Wheeling: There are two conditions which stand out to most of us as those where oxygen is most useful in postoperative care. The first is following thyroidectomy when there is a great need for increased oxygen intake, and oftentimes oxygen is the lifesaving factor in the very sick postoperative thyroid. In the field of thoracic surgery, operation upon the lung or upon the thoracic cage, often when the vital capacity of the patient is low, either due to destruction of the parenchyma of the lung or in heart disease, oxygen is the factor which pulls the patient through.

To me the high spot of Dr. Mayo's discussion was the use of concentrated oxygen at the operating table in assisting the surgeon to determine whether or not a loop of bowel is viable. I think all of us have been in the position when we would like to ask the Lord or someone to tell us whether to drop a loop of gut back or whether to resect it. Oftentimes that point means either life or death for the patient. I wish to thank Dr. Mayo very much for giving us that fine point.

In that connection, if we use it as a therapeutic postoperative measure, for instance in the debilitated

patient upon whom some type of operation such as a gastroenterostomy or partial gastrectomy has been performed, where there often is slow healing, the use of concentrated oxygen will certainly act as a stimulus to start healing, promote the slow healing in the gastroenterostomy, and possibly promote wound healing of the abdomen, which occasionally is very delinquent.

Dr. Wade H. St. Clair, Bluefield: In May of this year while at the Mayo Clinic, Dr. Mayo, who is greatly interested in the use of oxygen to overcome anoxemia in high altitude flying as well as in oxygen therapy, took me to the basement of the clinic building which is their experimental station. He demonstrated the low pressure chamber in which an atmospheric pressure ranging up to 30,000 feet can be artificially produced. Some of the recorded problems given to pilots at different altitudes were shown which demonstrated confusion above 12,000 feet corrected after inhaling oxygen. Patients were shown taking oxygen for a variety of conditions hoping to establish its therapeutic value.

In 1936 Fine, Banks and Hermanson of Boston reported results of the use of 95 per cent oxygen in the treatment of intractible distension of the small intestines in animals. They demonstrated that nitrogen and hydrogen are the major constituents of the gases causing the distension and that inhalation of pure oxygen substantially reduces the gas volume in experimentally obstructed small intestines inflated with these gases. The inhalation of pure oxygen accomplishes this result by preventing the entrance of atmospheric nitrogen into the lungs. The nitrogen in the blood and tissues is rapidly exhaled. The resulting fall in the parietal pressure of this gas prevents diffusion of it from the blood into the intestines and accelerates diffusion from the intestines into the blood. Their experiments showed that after inhalation of pure oxygen for 24 hours the volume of nitrogen injected into the small intestine obstructed at the pylorus and the ileocecal valve was reduced 62 per cent in comparison with an absorption of about 10 per cent when air was inhaled. When the obstructed intestine was inflated with hydrogen, the residual gas volume was reduced but, not so strikingly as in the case of nitrogen, and was due not to the diffusion of hydrogen from the intestines but to the elimination of nitrogen which ordinarily diffuses into the intestines in considerable quantity. The decompression action of oxygen has little effect on the stomach and colon, both of which can be deflated by tube.

A rather elaborate apparatus was devised for administering concentrated oxygen which has necessarily retarded its general use. Since the advent of the B.L.B. mask designed and perfected by Dr. Mayo and his co-workers the administration of high percentage oxygen can be administered efficiently and economically even in the homes. I feel that I can add nothing to Dr. Mayo's excellent paper other than mention our personal experience with the apparatus in a limited number of cases which corroborates the efficacy of oxygen therapy. We have used it in postoperative distension with marked relief. In four cases of migraine two were completely relieved. The third case, of a lady long suffering from migraine, was not a fair trial. She called it another experiment and inhaled the oxygen for only 15 or 20 minutes with no relief. The fourth case, a doctor's wife, came in presenting a letter from Mr. Alvarez, suggesting that it be tried for an hour and a half. If there was no relief in this time, he felt that it would not be of any benefit. After an hour she asked that it be discontinued and that she be given her usual dose of gynergen.

I should like to further emphasize the importance of its early use as a preventive of complication rather than cure. Apropos of this a doctor was visiting our hospital some time ago and was making rounds with me. We looked in on a lady in an oxygen tent, who had passed the crisis of a pneumonia and appeared fairly well out of danger. On leaving the room he remarked, "Don't be too sure in that case for I never saw one get well that had to be put in an oxygen tent." Evidently it was being used as a last resort in his hospital.

Dr. W. A. Thornhill, Charleston: I should like to ask Dr. Mayo if, since commercial oxygen is so easily available in our industrial community, it could be run through soda lime and used hooked up with the B.L.B. mask. If we can use commercial oxygen run through soda lime it would save expense to the patient.

Dr. H. M. Beddow, Charleston: I should like to ask Dr. Mayo if he has had any experience or can give us any word concerning the injection of oxygen subcutaneously in localized gas gangrene infections of the extremities.

Dr. Walter E. Vest, Huntington: What is the cost of the apparatus?

Dr. Mayo, closing the discussion: In regard to oxygen may I say that it should not be considered as a panacea, that you may try it in a number of conditions and find that it does not benefit, but you will find that it never does harm, which is saying a lot for any therapeutic measure. It should be used as a support to other therapeutic measures. In these times of financial distress, any measure that reduces the cost to the patient without the loss of efficiency is certainly one to be considered.

As for the use of commercial oxygen, it can be used with the mask or with the oxygen tent, and you will find that it is usually obtained at a very reasonable price.

In regard to gas gangrene and the use of injected subcutaneous oxygen, we have not had any experience. However, we have had experience in the use of inhaled concentrated oxygen in cases of gas gangrene. I know of three cases. How much credit one can actually give to the use of concentrated oxygen I do not know, but I do know that the benefit in these patients following its administration was rather remarkable.

As to the cost of the mask, at the present time the complete set-up is around $20, but according to the company that has the manufacture of it, with increased use the cost of the equipment will be substantially reduced.

Dr. Porter asked me, while I was sitting beside him, a question as to the difference between oxygen in solution in the blood under normal conditions and following the administration of oxygen. As I pointed out in the early part of the paper, Bohr showed that oxygen in 100 c.c. of blood, normal temperature, and under one atmosphere of pressure, contained 2.2 c.c. of oxygen, whereas oxygen in the arterial blood under normal conditions of respiration and circulation amounted to 0.3 c.c. of oxygen for every hundred c.c. of blood.

As Dr. Brace brought out yesterday, it is true that oxygen to be used by the tissues first passes from the hemoglobin to solution in the blood before it is available to the cells.

IMMEDIATE CERVICAL AND PERINEAL REPAIRS*

By E. N. DU PUY, M. D.
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THE title of this paper is abrupt and rather misleading, but coming from an obstetrician it refers to the postpartum patient, including patients who have had accidents of pregnancy causing premature labor, miscarriage, or spontaneous abortion. In fact we very frequently find these accidents of pregnancy resulting from old injuries to the birth canal and although the patient has been urged to have an interval operation, pregnancy often occurs before she could "get around to having the operation." Thus the patient is a candidate for endless repetition, experiencing the discomfort of her injured genital tract as well as the hazards of subsequent pregnancies.

It has not been so long since any elective operative procedures following delivery were most vigorously opposed. It has only been in the past five years that we have found a few progressive and courageous obstetricians who would countenance these repairs. However, as early as 1906, Dr. F. H. Stuart of Brooklyn advocated immediate repairs of the birth canal and in 1916, Dr. J. L. Bubis of Cleveland performed an extensive gynoplasty on a forty year old woman who had had ten children. His courage in performing a

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trachelorrhaphy, a colporrhaphy, and perineorrhaphy, as well as a hemorrhoidectomy was shockingly radical but the patient's uneventful recovery and good end result served to initiate a series of several thousand cases which have followed this first patient through his clinic. His summarized results clearly show the very distinct advantage of this practice.

Too frequently women will not return to the hospital for these needed repairs for various reasons, principal among them being economic conditions, domestic obligations, and timidity. So often the family physician is at fault in advising a patient to wait until after her reproductive period before having necessary birth canal corrections with the argument that subsequent pregnancies will merely destroy the results of an operation. Thus the patient is subjected to needless years of discomfort, if not actual pain. Estranged wives have often attributed their marital difficulties to an unhappy sex relation, following injuries occasioned by childbirth.

VALUE OF OPERATIONS

My paper is not to introduce a new subject but merely to call attention to the value of these puerperal operations and emphasize the universally good results that have been obtained from the very beginning, and in the hands of almost all operators. This can be attributed to several things. The skill of the men who first adopted these procedures must have been above the average, else they would not have undertaken so radical a step. Incidentally, it was not long until these men, all of them having had previous experience with trachelorrhaphies and perineorrhaphies, noted that the patients repaired immediately postpartum made a quicker recovery than those repaired three, six, or eight months following delivery. Obviously the reason for this is the much better blood supply to the affected parts immediately postpartum. One might say that nature is more in the mood for repair since normal restitution is going forward with involution of the uterus and it is part of her duty at this time to return the pelvic organs and adjacent tissues to a normal state. When we can facilitate this by removing necrotic, torn, and scarred tissues we are relieving, in some measure, the burden at this time. Perhaps another point in favor of better healing is the greater elasticity of the tissues so that there is less tension on the parts repaired. And although there is the argument that the edematous condition of the tissues prevents our proper delineation and coaptation this is merely a matter of skill and judgment. One other factor must also be mentioned—infection. Although this is a controversial subject it seems that the pelvic region, particularly the vagina and vulva, are more resistant at the time of delivery. We have all had the experience of treating a third degree laceration of the perineum and in spite of the fecal contamination watched healing per primum. We know also that a patient's general health is better during pregnancy than at any other time of her life and so this too must be added to those points mentioned above.

SELECTED CASES

We reserve these operations for selected cases which have had proper prenatal care and an explanation of the intended repair. During the patient's pregnancy we make a practice of treating any local infection of this region so that we may have as clean an operative field as possible. If the labor has been without mishap and the patient's condition is good, our procedure is briefly as follows. Following the delivery of the baby and during the time that the placenta is separating we proceed with the fluid dissection of the perineum. I might mention at this time that we commonly use for analgesia and anesthesia the barbiturates supplemented with small doses of pantopon, and following the above, paraldehyde. At the time of delivery it is sometimes necessary to administer a small amount of nitrous oxide and oxygen. However, after delivery the reparative operations can usually be done with local anesthesia alone. Therefore we use a

procaine and epinephrine solution for dissection. At this point the placenta will probably have separated and can be expressed. We then administer one-half c.c. of pitocin intravenously. Simultaneously an ergot preparation is administered hypodermically, which conserves maternal blood and prevents soiling of the operative field.

OPERATIVE TECHNIQUE

The technique of the various operative procedures is relatively simple and made easier by the mobility of the uterus, the cervix, and the posterior vaginal vault. To facilitate examination of the cervix we grasp the anterior and posterior lips with sponge forceps making sufficient traction to bring the cervix into view. It is also helpful to have an assistant make pressure on the fundus of the uterus from above. We advocate the removal of any old scars found in the cervix. Any laceration of the cervix or the incision after removing scars is then closed with interrupted sutures of No. 2 chromic catgut. In order to prevent adhesions of the cervix to the vaginal wall the reflected vaginal mucosa is closed with a continuous Lembert suture. Colporrhaphies and perineorrhaphies are as simply done, the mucous membrane being elevated by dissection and any excess removed. The fascial edges are then approximated and of course any muscle group returned to the normal position by interrupted sutures of No. 2 chromic catgut. The mucous membrane is then closed with a continuous suture which is subcuticular in type. The skin edges of the perineum are closed, with a subcuticular stitch and secured by shot. Care must be taken to see that the sutures are not placed too tightly since this may cause sloughing. We do not believe in the use of skin retention sutures and feel that the skin edges, when approximated with a subcuticular stitch, have a better chance of healing by first intention when there is no avenue of entry along the through and through retention suture.

No especial care is given to the operative field following the patient's return to her room. We simply advocate a soap and water external douche thrice daily. We do not believe in routine catheterization nor do we attempt to prevent bowel movements even when the repair involves the sphincter ani. Of course in the repair of an old complete tear we place a rectal catheter through which during the first three postoperative days we instill olive oil. Following these repairs we give mineral oil by mouth twice daily. We believe in the routine administration of suitable oxytocics keeping the tone of the uterus at a high state to prevent the formation and passage of blood clots. This not only tends to prevent severe after pains but saves unnecessary strains on the operative field when such clots are passing. All patients are kept in a semi-Fowler position during the first five days and from the first day we advise placing the patient on her abdomen for 20 to 30 minutes three times a day. The baby is allowed to go to breast after 12 hours. There are no diet restrictions.

In a series of one hundred consecutive cases our morbidity does not seem to be appreciably higher than that of patients not having an operative procedure and certainly lower than those patients who have unrepaired lacerations following delivery. We fortunately have had no deaths. With one exception all the patients have been without complications. This one patient had a stitch abscess which, however, did not interfere with the end result. She was treated with ice caps and did not require incision and drainage. She had an elevation of temperature, over a five day period, reaching as high as 104. Incidentally this occurred after the patient was allowed to go home and it was not necessary to return her to the hospital.

EPISIOTOMY

It has not been so long since obstetricians adopted episiotomy as almost a routine, especially when delivering a primipara. Its success has been well proved and in a large group of patients, where a comparison can be made be-

tween those having episiotomy and those not having this operation, impartial gynecologists note the much better condition of those patients in the former group.

Thus the obstetrician, while robbing the gynecologist of certain chores which he has in the past been accustomed to performing, is contributing to the economic convenience of the patient in having these things done so that she may doubly accomplish the convalescence from her accouchement as well as her genital repair. It is difficult to understand why this procedure of immediate, if not intermediate, operation has not gained in popularity. But like many accepted maneuvers of today it no doubt is destined to have a cyclic period of popularity before being accepted as a routine procedure with all obstetricians.

FOREIGN BODY (NEEDLE) IN THE STOMACH

By WAYNE BRONAUGH, M. D.
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During the past few years several articles have appeared dealing with foreign bodies in the stomach. It is extremely seldom that an adult will accidentally swallow a foreign body. Most of such cases occur as suicide attempts, usually associated with insanity, and many foreign bodies such as pins, nails, tacks, screws, buttons, knives, razor blades, etc., are swallowed. A few cases of professional swallowers are reported wherein all types of foreign bodies that can be made to pass down the esophagus have been recovered by gastrotomy.

Practically 100 per cent of the cases of foreign bodies in the stomach of young children or infants are accidental and follow the placing of the foreign body in the mouth.

It is now known that it is possible for almost any kind of foreign body, if it is small enough to pass the pylorus and not too large to travel through the intestinal curves, to reach the anus and be expelled without damage to the intestinal canal.

Foreign bodies such as tacks, screws, coins, buttons, closed safety pins, straight pins, marbles, will in most cases pass through the intestinal canal in from one to four days without causing any disturbance. Foreign bodies such as pins over two inches long, open safety pins, nails, etc., that have sharp points, are more prone to cause intestinal injury, or even perforation, than foreign bodies not possessing this feature.

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Chicken or fish bones are among the most common foreign bodies to reach the stomach. In carnivorous animals these form a part of their normal diet. In man they practically never give any disturbance because as in the lower animals they are decalcified by the gastric juice and digested. Many such bones are swallowed unconsciously and go through normal digestion never reaching the anus.

Foreign bodies possessing no sharp points and small enough to pass through the normal pylorus should be allowed to pass. They will usually pass without interruption and harmlessly through the entire canal. If possible they should be observed daily with the fluoroscope to be sure of their progress and to make certain they leave the body. They should be recovered in the stool.

Dependence must be placed upon the ability of the röentgenologist to discover the shape and size of the foreign body and its propor-

tion in size to the pyloric opening. If it is not too large to pass the pylorus, much time, even months, may be given for it to leave the stomach. It is astounding how long some foreign bodies have remained in the stomach and then passed through the pylorus and uneventfully through the intestinal canal. The duodenal curve and duodeno-jejunal angle are the most common places of arrest after the pylorus has been passed. Seldom is any damage ever done to the stomach and digestion is little impaired by the long residence of the foreign body therein. The advisability of waiting for the passage of a foreign body from the stomach depends entirely upon its physical characteristics. Those that cause no harm should be given much time, those liable to perforate should not be observed too long.

Many cases where straight pins, open safety pins, of medium or small size, bobby pins, hair pins, darning needles, etc., have passed uneventfully through the intestinal canal have been reported.

There are, however, some foreign bodies which when present in the stomach should be removed at once. Any foreign body too large to pass the pylorus, large open safety pins, long sewing or darning needles, sharp on both ends, long nails, etc., which do not leave the stomach and which appear also to be incapable of passing through the intestine, should not be allowed to endanger the patient but should be removed while they still remain in the stomach.

PERORAL ENDOSCOPY

Probably the most satisfactory method of removing a foreign body from the stomach is by means of peroral endoscopy, with röentgenoscopic assistance using a double-plane röentgenoscope. One endoscopist has devised a sheathed flexible gastroscopic forceps by means of which, with the aid of an experienced röentgenologist using fluoroscopic guidance, he has been very successful in removal of foreign bodies from the stomach. These specialists, however, are found only in the larger medical centers and cases arising in the smaller communities, which for various reasons it is impossible to refer elsewhere, have to be cared for at home.

STOMACH TUBE USED

A simple method of removing a foreign body such as a safety pin, straight pin, bobby pin, small nail, or any object that will lend itself to the method is to pass a suitable sized stomach tube into the stomach, then after the abdomen is opened the foreign body is teased or milked through the opening into the lumen of the tube, without opening the stomach. Small safety pins can be closed by manipulation with the fingers and then teased into the lumen of the tube. A more simple and easier method in the case of open safety pins is to suture a small piece of cloth to the end of the stomach tube, then with stomach in hand the safety pin, still open, can be made to engage the cloth. After this is accomplished the pin is closed. By either procedure the object is removed with the tube as it is withdrawn from the stomach. Pressure enough to close the safety pin can be exerted upon the stomach wall with the fingers without dangerous trauma. These tricks have been successfully accomplished by different operators.

A method of removing a darning needle, two and one-half inches long and sharp on both ends, from the stomach of a five year old child which I recently used and have not found to have been previously recorded is as follows: After the stomach is opened the needle is located in the stomach by placing a finger on the posterior stomach wall through a small opening in the gastrocolic omentum and the thumb on the anterior stomach wall. The needle is then grasped between finger and thumb. It is next grasped with a stomach clamp by applying the clamp to the needle with the anterior stomach wall intervening between needle and clamp. The needle is now made steady and with a small hemostat it is made to perforate the stomach wall. It is then caught and pulled on through. It is much better if the pointed end instead of the eye end is made to perforate the stomach wall

first. In either case the gastric wall is wiped off with a moist sponge and a purse string suture turns the serosal coat inward. This last step is really not necessary because the hole made by the needle is sealed off immediately. It required only 20 minutes for removal of the needle from the stomach in this case.

Apparently this is not a dangerous procedure but can be practiced only in cases where the foreign body is a straight or curved needle which will make a non-traumatic journey through the gastric wall.

It is best not to resort to gastrotomy in infants or very young children when more simple methods will suffice, because with gastrotomy the operative danger is greatly increased.

SUCCESSFUL CHEST OPERATIONS

"The most successful operations on the chest are accomplished as a result of teamwork by a group of men, each a specialist in his own field, who collaborate in establishing the diagnosis and in outlining and administering treatment in each case," M. F. Arbuckle, M.D., and A. C. Stutsman, M.D., St. Louis, declare in *The Journal of the American Medical Association* for October 7.

"Such a group," they continue, "properly consists of an internist who is especially interested in thoracic disorders, a thoracic surgeon who is a specialist in this field by reason of actual and thorough training, a bronchoscopist similarly qualified, an x-ray expert, a pathologist and a bacteriologist.

"Bronchoscopic examination entails much more than the mere introduction of the bronchoscope. It requires that the bronchoscopist interpret correctly what he sees. Also it is very important that the instrument be passed into the trachea (windpipe) without injury to the lips, teeth, tongue, gums, pharynx or larynx and without mental hazard to the patient.

"Most disorders of the chest and lungs may be discovered and recognized by means of x-ray and physical study, but they may be much more accurately localized and their exact nature may be more definitely established by visual examination through the bronchoscope and the study of specimens (by the pathologist and bacteriologist) obtained during the examination."

Tuberculosis Abstracts

Furnished Through the Courtesy of the West Virginia Tuberculosis Association

Phrenic nerve interruption in the treatment of tuberculosis has lately lost much of its former popularity. By some it is condemned as being practically useless, if not actually harmful. A more discriminating judgment of this operation is urged by J. W. Cutler who has analyzed 122 consecutive phrenic nerve interruptions in his private patients.

Claims concerning the value of phrenic nerve interruption are contradictory and confusing. One author reviewed 78 reports involving a total of 7,435 operations performed as an independent procedure and found "cures" reported in 23 per cent. On the other hand, Coryllos, citing his own experiences and those of several workers abroad concluded that the operation is "not efficient, not without danger, and causes a loss of precious time."

This wide divergence of opinion is in good part explained by the type of patient treated—phenomenally good results are in relatively early cases and they would undoubtedly have been obtained from bed-rest alone, while in far advanced cases and in the presence of large, thick-walled cavities success can rarely be expected.

In a consecutive series of 122 tuberculous patients on whom phrenic nerve interruption was performed, it was done on 106 as an independent collapse measure. Many stages and varieties of tuberculosis are represented. Sexes are about equally distributed. The operation was done 60 times on the left side and 62 on the right. In 65 the interruption was temporary, in 57 permanent.

Evaluation of the operation should be based primarily on the changes that follow in the lung under consideration, as determined primarily by comparative x-ray findings, and not necessarily upon the ultimate fate of the patient. The time element, following operation, is of extreme importance. The good results of phrenic nerve interruption become evident within the first six months. Late results are more difficult to define; therefore, a three-to-five-year postoperative interval, as a basis for late results, is not unreasonable.

The evaluation of phrenic nerve interruption is discussed under four main headings: (1) the value of the operation as an independent collapse measure, (2) the value as an adjunct to other collapse

measures, (3) complications of the operation, and (4) temporary as contrasted with permanent phrenic nerve interruption, and their corresponding indications and contraindications.

In retrospect, the cases are classified as "apparently suitable" and "unsuitable." Unsuitable cases include: (1) apical cavities three or more cm. in diameter, for the operation is useless in the attempt to close apical cavities in which the apex has become more or less excavated and adherent to the thoracic wall; (2) dense fibrotic lesions with embedded cavities; (3) pneumonic consolidations; (4) acute infiltrations. In this series there were 30 patients with lesions deemed in retrospect as unsuitable for the operation. The contraindications, in the sense that no benefit will follow, cannot however be considered absolute for occasionally a distinctly good result will follow.

Seventy-one patients fell into the "apparently suitable" category and were evaluated as follows: (a) Unimproved, 52 per cent. No material x-ray evidence of improvement in the tuberculous lesions noted within three to six months after the operation, or an actual increase in the disease. Lack of improvement was observed in all kinds of cases with "apparently suitable" lesions, including both cases of early limited infiltrations without x-ray evidence of cavity and cases of advanced disease.

(b) Improved, 34 per cent. Cavity was either closed or reduced in size or there was x-ray evidence of significant clearing with lessening of toxemia and improvement in well-being. However, in early 14 of the 24 cases in this group, did the improvement result in the stabilization of the lesion so that no further therapy was required. In the remaining 10, improvement, marked at first, was in time followed by serious collapse.

(c) Cleared, 14 per cent. Clearing of the disease in the lung except for some fibrous strands and a few small, sharply defined, moderately dense, spots. There were cavities of varying sizes in eight and infiltration without x-ray evidence of cavity in two. The result followed so shortly after operation and in such manner as to leave little doubt that the paralysis of the diaphragm was the responsible factor. The lungs have remained clear over an average period of more than six years after operation.

No concrete conclusions could be reached as to the type of case among the "apparently suitable" patients in which the operation can be undertaken with reasonable assurance of success. Good results were obtained in advanced disease and in unexpected situations. On the other hand, failures were encountered in minimal cases. In general, good results were observed more frequently when the major lesion was situated below the clavicle, and when the cavity was isolated, thin-walled and surrounded by nearly normal lung tissue.

The relative value of phrenic nerve interruption as an alternative to artificial pneumothorax and thoracoplasty, is considered. In the majority of cases in which phrenic nerve interruption was used as an alternative to pneumothorax the operation was either a useless undertaking or relapse followed an initial improvement. In those cases in which bilateral pneumothorax ultimately became necessary, selective collapse could be established in only 12 out of 28 patients. Time wasted on phrenic nerve interruption was largely responsible for the formation of extensive adhesions. Phrenic nerve surgery should not be looked upon as a substitute for pneumothorax, but must be regarded as a supplementary form of therapy.

More serious is the question of phrenic nerve interruption in preference to thoracoplasty. Of 31 patients in this series suitable for an immediate thoracoplasty, but subjected to phrenic nerve interruption in the hope of avoiding thoracoplasty, three died from hemoptysis and three from progressive tuberculosis and seven more became hopeless invalids. In retrospect, these tragedies might have been avoided had thoracoplasty been performed promptly when conditions were most favorable. The important thing is not to resort to a phrenic nerve operation when thoracoplasty is plainly indicated, and not to delay thoracoplasty beyond the time when the phrenic nerve operation has accomplished its maximum good.

Phrenic nerve interruption was carried out also in 16 patients either as an adjunct to other collapse measures or in the treatment of certain complications of pneumothorax therapy including: ineffective pneumothorax, hemoptysis, troublesome cough, discontinued pneumothorax therapy, spontaneous pneumothorax, empyema cavities. The operation accomplished the desired result in about one-third of these patients.

Complications of phrenic nerve interruption must be taken into consideration. In the present series, significant complications attributable to the opera-

(Continued on page xxxi)

President's Page

It seems pertinent that some comment and explanation should be given on our Association's role in handling and presenting the service contributions made by approximately one hundred of our surgeons and specialists to the Department of Public Assistance. This was not an Association project but was worked out and completed by Drs. J. Ross Hunter, R. H. Walker and Robert K. Buford of Charleston. It was not done with the idea of admitting the responsibility of the medical profession for relief clients, but to recognize the inadequacy of funds, particularly since the reduction of relief appropriation, to work out a plan to give more adequate medical care to these people. These men, in taking over this large portion of the medical relief load, do it with the definite understanding that there will be no reduction in the medical relief appropriation already made. Better care of the relief client in the home, particularly in the rural areas, is assured and at the same time it provides payment of funds available to the general practitioner who has had to carry such a heavy burden.

After the project was completed, these credit steps were turned over to the State Association to present to the Governor and Department of Public Assistance. This presentation was made on October 14, and was received with sincere appreciation and thanks. A question has been brought up regarding the participation of the internists and other branches of medicine in work done in the hospital. There is no reason why any member may not participate if he desires and it is entirely probable that individual county societies may work out a more general plan along these lines.

I should like to congratulate the men who have done this fine, unselfish piece of work which not only assures the indigent better medical care and more adequate pay for general practitioners, but places our profession on a higher plane in the eyes of the public, during this emergency.

Ray M. Bobbitt

President.

West Virginia Medical Journal

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VIRGINIA ACCEPTS

On October third the House of Delegates of the Medical Society of Virginia, accepted our invitation for a joint 1940 meeting at White Sulphur Springs, extended by our own House of Delegates last July. Thus for the first time since the war between the states, the physicians of the Old Dominion and the New will gather under the same roof to share the social and intellectual advantages of a medical convention.

While plans for the 1940 combined meeting have not yet been worked out, it is reasonable to assume that joint scientific sessions will feature the assembly and that the scientific committees of the two states will give to all of us a program of unsurpassing merit. We understand that the two program committees will meet together in the immediate future and we are sure that every detail will be worked out to the satisfaction of both societies.

The reunion possibilities of the joint meeting are exceptional. More than one-third of the members of the West Virginia State Medical Association are alumni of Virginia schools. From the far reaches of both states we expect to find doctors in attendance, looking up former classmates, renewing old acquaintances and enjoying the fraternal fellowship of sister states.

During the next nine or ten months we will hear much of the plans and possibilities for our joint convention. For the present we express our pleasure in Virginia's acceptance of our invitation and our congratulations to both societies for their excellent judgment.

THE DOCTORS CONTRIBUTE

In the general news columns of this JOURNAL will be found the story of some 100 surgeons and specialists of West Virginia who voluntarily contributed more than $70,000 in advance service credits to the Department of Public Assistance. The contribution, which attracted much favorable publicity for the organized medical profession, was designed to eliminate the surgical costs of the Department of Public Assistance, so that these funds could be utilized in providing more complete medical service in the needy areas of the state.

The reduced appropriation of the Department of Public Assistance has undoubtedly handicapped the DPA rural medical service program. During the past three months the curtailment of medical service has caused much dissatisfaction from needy relief clients and from the family physicians who have been compelled to carry the brunt of the medical program. The problem was one that caused grave concern both to the State Association and to the Public Assistance Department. It is encouraging to note that the medical profession, acting entirely on a voluntary basis, recognized the problem and provided a simple and effective remedy.

Acting for the contributors, the State Association has concluded an agreement with the Public Assistance Board setting forth the terms and provisions under which the contributed services are to be utilized. This agreement adequately protects the contributors against imposition and eliminates the possibility of unfair competition against our rural and family doctors. Obstetrical and medical cases and all other procedures that are normally carried out by the family doctor are eliminated by the agreement.

We extend our warm congratulations to the men who worked out this plan and who

participated in it. The favorable publicity to the profession was much needed and will be a potent factor in our public relations for a good many years to come. As an altruistic gesture of friendly cooperation to the Public Assistance Department and to our family doctors, the plan is hard to beat.

Most of the state's leading daily newspapers carried editorials on the contribution which reflected most favorably upon the medical profession. Typical is the comment from the October 15 issue of the *Charleston Daily Mail*, "As far as we know, the action taken by the state's doctors is unique in this country and marks a great step forward. It gives an eloquent answer to the sneering charges made by many misguided social workers who have advocated government control of the medical profession. We are proud to extend our congratulations to the medical profession of West Virginia."

WE NEED HELP

Last month we urged our Association members to help out the JOURNAL in its present endeavor to bring about the renewal of its advertising contracts for 1940. This should be a matter of prime importance to you, because if it were not for the JOURNAL's advertisers, your dues would be increased approximately five dollars per year.

The help of all of you is particularly needed at this time. Many of our best advertisers are now working on their 1940 advertising schedules. They will schedule their advertising with the journals from which they have received the best response, and will weed out those publications which have not indicated tangible results. Several of our large advertisers have carried trial advertisements with us through 1939, and their 1940 schedules will be based entirely upon their 1939 results.

What we want you to do is to send for the coupons and literature that are offered in the JOURNAL, and thereby demonstrate your interest in your own publication as well as the products which you will receive. If this were a hardship we would not ask it. Every doctor sees these coupons and other offers in the JOURNAL, and many physicians are inclined to respond to them, but neglect to do so. If you are really interested in the offer, as many of you are, make use of it at once.

Our advertisers are our partners in publishing the WEST VIRGINIA MEDICAL JOURNAL. We are grateful to them for paying its publication cost, not to mention its earnings. Our members unquestionably appreciate the information and educational value of the advertisements to themselves personally. These advertisements constitute an index of the sources from which products or services may be obtained. This is a cooperative enterprise from which we all profit in many ways. With your support, our JOURNAL will continue to improve and continue to make money for the common cause.

CABELL RESOLUTION

As a further step to assist the American Medical Association in bringing about the establishment of a National Department of Health with a medical doctor as the executive member of the president's cabinet, the Cabell County Medical Society on October 12 adopted a resolution requesting action and volunteering assistance to the parent organization in securing this most desirable legislation.

The Cabell county resolution called attention to the widespread agitation for a national health program and pointed to the fact that it could only be developed by a process of evolution and study. Agreeing that the health of the American people is of supreme importance to national welfare, the Cabell resolution suggested that all of the health activities of the nation be correlated and administered by a single executive department.

The promotion of a National Department of Health was recommended to and adopted by the House of Delegates of the American Medical Association at the San Francisco

meeting in 1938, and the Cabell society desires that immediate efforts be made to develop activities toward carrying out this recommendation. Similar activity by other county groups would undoubtedly help in bringing this matter to the forefront.

Obituaries

DOCTOR GEORGE H. BARKSDALE

Dr. George Holt Barksdale, 57 years of age, died at his home in Charleston of a heart attack, October 9, 1939. Apparently in normal health, he had spent a quiet day at home with the members of his family, who said that prior to the attack he had shown no signs of illness.

Dr. Barksdale was born in Monroe county, West Virginia, on August 15, 1882. Following his preliminary education, he came up the hard way and graduated from Northwestern University School of Medicine in 1908. Following four years' interneship and special work in internal medicine, he located in Charleston in 1912 and practiced there until his death. During the World War he served as a major in the Medical Corps of the U. S. Army.

Doctor Barksdale was recognized as one of the outstanding internists of West Virginia. He was a past president of the Kanawha Medical Society and had served as a member of many of the most important committees of the West Virginia State Medical Association. During his active career he served as president of the West Virginia Tuberculosis Association, president of the West Virginia Heart Association, and on the Board of Directors of the National Tuberculosis Association.

He is survived by his wife, two sons and one daughter. Funeral services were held in Charleston on October 10 with the members of the Kanawha Medical Society serving as hononary pallbearers.

DOCTOR J. H. CRAFT

Dr. James Harvey Craft, prominent Mercer county physician of Princeton, Springton and Bramwell, died on September 24, 1939. He was born at Rocky Mount, Virginia, in 1874, and graduated in medicine from the University College of Medicine, Richmond, in 1905. He entered practice in West Virginia immediately thereafter and practiced in Mercer county until his death.

DOCTOR U. L. DEARMAN

Dr. Ulysses L. Dearman died at his home in Reedy on July 11, 1939, after an illness of nearly four years. He was a prominent citizen and doctor of Roane county and was born there on July 23, 1867. In his early days, he taught in the rural schools of the county and engaged in farming for a number of years. He graduated from the Medical Department of the University of Kentucky in 1906.

Dr. Dearman served a number of years as Roane county health officer, examining surgeon for the Baltimore and Ohio Railway Company, pension examiner, and also served on the examining board for World War soldiers. He was an honorary member of the West Virginia State Medical Association.

He is survived by his wife and three sons and two daughters, Dr. A. Morgan Dearman of Parkersburg being one of his sons.

DOCTOR H. C. JONES

Dr. Hiram C. Jones, prominent general practitioner of Logan and Mercer counties for more than half a century, died in a Huntington hospital on September 29, 1939, following a short illness. He was 78 years of age and received his West Virginia license in 1888, following graduation from the College of Physicians and Surgeons, Baltimore.

Funeral services were held at Bluefield on October 1 and interment was made there. Dr. Jones is survived by a daughter and two sons, one of whom is Dr. A. S. Jones, Huntington orthopedic surgeon. In recognition of his outstanding service as a practicing physician, Dr. Jones was elected to honorary membership in the State Association at the White Sulphur Springs meeting in July.

DOCTOR ETLEY P. SMITH

Dr. Etley Price Smith, prominent Fairmont surgeon, died on October 18, following an extended illness. He was born at Union, West Virginia, fifty-six years ago and, after receiving his academic schooling at West Virginia University, obtained his medical degree from Jefferson Medical College, Philadelphia. Dr. Smith was always active in Association work until several years ago when he had to retire from regular practice on account of ill health. He served as vice president and president of the Marion County Medical Society and councillor of the State Association. Dr. Smith was noted as a big game hunter, being prominent in the field of his hobby as well as in his chosen profession.

TWENTY-FIVE YEARS AGO

(Gleaned from the West Virginia Medical Journal, Nov., 1914)

Among original articles in the November, 1914 JOURNAL, we find the names of Dr. S. S. Gale of Roanoke, Virginia; Dr. C. A. Barlow, Spencer; Dr. J. W. Williams, Richmond, Virginia; Dr. Irvin Hardy, Morgantown.

A SURGEON'S PRAYER

"Oh Lord, now that this day is over, grant me the gift of sleep. Watch over my ligatures and may the peritoneum do its duty. Let me not be envious of the success of the men who work harder than I do. Endow me with humility so that I may change my methods for better ones. May my mistakes give me more concern than my successes. And oh Lord, keep my conscience awake even when my intellect nods. Lead me not into the temptation of fee-splitting. Deliver me from the too-long-delayed operation, but grant me strength to do my duty no matter what my mortality statistics may be. For all these and the chief blessing of work, I humbly ask. Amen.—L. M. K."

"Dr. Wade H. St. Clair announces to the profession that he is limiting his practice to general surgery and gynecology. He has established his office at the Bluefield Sanitarium."

"At a regular meeting of the Kanawha County Society, Past Assistant Surgeon Bryan of the U. S. Public Health Service addressed the society on 'Typhoid Prevention.'

"The toastmaster, Dr. Shawkey, referred to the recent campaign of the *Charleston Mail* against unsanitary streets and called on Walter Clark, the editor, to address the society along that line."

"The Barbour-Randolph-Tucker Medical Society held its regular October meeting in Elkins, having present Drs. Murphy, Hoff, Gruber, McIntosh, Sturdivant, Golden, Lawson, Daniels, Moore, Neal, Ladwig and Irons.

"Dr. B. B. Sturdivant of Harding, West Virginia, read a most excellent and well prepared paper upon 'Pellagra,' which was discussed by Drs. Lawson, Golden and Murphy. So far as we know, only one case has ever been reported from West Virginia."

County Society News

BOONE COUNTY

The Boone County Medical Society met in regular session at the health department headquarters in the County Building at Madison on Thursday, September 28. The program consisted of a round-table discussion on the examination of mine employees. Dr. W. V. Wilkerson, Prenter, opened discussion by giving the policies of one of the leading Boone county coal companies. A number of reasons were given for rejecting an employee. Some of these reasons were accepted by the doctors present, others were openly protested. Dr. C. E. Lewis, Nellis, disputed many points given as a reason for rejecting an employee and ably defended his viewpoint. This was a most interesting and thought-provoking session.

Those present at the meeting were Mr. Morgan, superintendent at Prenter; Dr. D. F. Pauley, Jeffrey; Dr. W. F. Harless, Madison; Dr. Gerhardt, Van; Dr. C. E. Lewis, Nellis; Dr. H. H. Howell, Madison; Dr. Wilkerson and the secretary.

R. L. HUNTER, *Secretary*.

CABELL COUNTY

Dr. William F. Beckner, Huntington, was elected president of the Cabell County Medical Society at a meeting at the Governor Cabell Hotel on October 12. Dr. Beckner will serve during 1940, succeeding Dr. I. I. Hirschman. Other new officers will be Dr. George Lyon, vice president; Dr. Frank Barker, treasurer; Dr. Jay L. Hutchinson, secretary, and Dr. James Klumpp, board of censors.

The scientific program of the evening was presented by Dr. Stanley Weinstein, Huntington, who gave an interesting paper on "The Glandular and Hormone Treatment of the Menopause."

Dr. L. J. Moore and Dr. Clarence L. Boso, both of Huntington, were admitted to membership at the October 12 meeting. A resolution was adopted favoring the proposed creation of a National Department of Health with a cabinet portfolio.

JAY L. HUTCHINSON, *Secretary*.

FAYETTE COUNTY

The regular monthly meeting of the Fayette County Medical Society was held at the Laird

Memorial Hospital, Montgomery, on October 17, 1939. Dr. T. K. Laird, Montgomery, presented a paper upon the subject of "Etiology, Symptomatology and Treatment of Pelvic Infections in Women." Dr. Harold Jones, Montgomery, discussed the "Value of Gastroscopic Study," stressing the diagnostic aid of the gastroscope in pathological conditions of the stomach.

G. A. DANIEL, *Secretary*.

KANAWHA COUNTY

The October meeting of the Kanawha Medical Society was held at the Daniel Boone Hotel, Charleston, on October 10 with a good turnout. The essayist of the evening was Dr. Harold W. Jacox, radiologist of the Western Pennsylvania Hospital who gave a most interesting paper on "Lymphoblastoma."

A recent marriage of much interest to the profession was that of Dr. Anabel Hope Shawkey, daughter of Dr. and Mrs. A. A. Shawkey of Charleston, to Dr. Frederick Gray McConnell of Gate City, Virginia, son of the late Dr. H. K. McDonnell and Mrs. McDonnell. The marriage took place in Charleston on October 7.

A. SPATES BRADY, JR., *Secretary*.

LEWIS COUNTY

The Lewis County Medical Society met at Weston on October 10. The guest speaker of the evening was Dr. William R. Goff of Parkersburg who gave a very interesting and instructive discussion on "Diagnosis of Thyroid Conditions."

R. O. PLETCHER, *Secretary*.

LOGAN COUNTY

Dr. Edward F. Reaser and Dr. W. C. Kappes, both of Huntington, were the speakers at the September 13 meeting of the Logan County Medical Society. Dr. Reaser gave a talk on "Treatment of Neurosyphilis." Dr. Kappes talked on "Noduiar Goitre."

During the business session Dr. W. P. Hamilton, county health officer, was elected to membership. Dr. L. L. Aultz, Omar, was elected to honorary membership in the society.

The Logan County Medical Society met on October 11 at the Aracoma Hotel. The scientific program consisted of the showing of the motion picture film, "Human Sterility," and a talk by Dr. Fred E. Brammer on "Gynecomastia" and demonstrated by two cases from his practice.

Dr. V. L. Lance, Logan, and Dr. J. F. Morris, Holden, were elected to membership at this meeting.

The Logan society will hold a joint meeting with the Logan County Dental Society on November 8 at seven o'clock. There will be a banquet and the guest speaker will be Hugh W. MacMillan, D. D. S., M. D., of Cincinnati. His subject will be "Deep Abscesses of the Neck of Dental Origin." Members of surrounding counties are invited to attend.

J. W. CARNEY, *Secretary*.

MERCER COUNTY

The September meeting of the Mercer County Medical Society was held in the Municipal Building, Bluefield, on September 21. Dr. M. H. Bertling of McComas was elected to membership.

The first paper was "Further Studies of the Use of Sulfapyridine in the Treatment of Pneumonia," by Dr. J. F. Shanklin. Out of 45 cases treated, there were only two deaths. The cases were demonstrated with lantern slides.

Dr. O. G. King read a paper on "Streptococcic Septicemia Complicating Type IV Lobar Pneumonia." Dr. B. S. Clements led the discussion and related his experience in the treatment of eight cases of pneumonia wtih sulfapyridine.

Dr. W. W. Bauer, director of the Bureau of Health Education of the American Medical Association, was a special guest of the society at its October 5 meeting in the club room of the West Virginian Hotel, Bluefield. He discussed the work of his office and brought out certain phases of the indicements against the parent Association. Dr. Bauer expressed the opinion that in the face of the publicity the Association had undergone, it was time for the state and local societies to take up the matter and do all ethical advertising possible through newspapers, the radio and through public addresses.

O. G. KING, *Secretary*.

MINGO COUNTY

The regular meeting of the Mingo County Medical Society was held on September 19, 1939, at the Williamson Memorial Hospital. In the absence of Dr. W. H. Price, Dr. G. T. Conley presided. Present were: Doctors Conley, Zando; W. H. Burgess, T. D. Burgess, Wahl, Scott, Lawson,

Johnson, Burian, Poliakoff, Irvine, Quincy, Gaskel and Easley.

Doctors Easley and Lawson reported on the State Medical Meeting, where they represented the county society as delegates.

Dr. Lawson proposed a banquet inviting Pike county, Kentucky to participate; also having as guest speakers, Dr. A. E. McClue, of Charleston; Dr. Charles Morgan, of Moundsville, and Dr. A. B. Rhinehart, of Weirton. It was moved by Dr. N. Poliakoff that each member in the society be assessed to put on the banquet in the Mountaineer Hotel, the date to be definitely decided as soon as the speakers were contacted, and a date suitable to them could be arranged. The chair appointed Dr. T. D. Burgess, Dr. G. B. Irvine, and Dr. G. W. Easley as a committee to collect the money and make arrangements for the banquet.

GEORGE W. EASLEY, *Secretary.*

MONONGALIA COUNTY

The Monongalia County Medical Society played host to the tri-county medical meeting, consisting of Monongalia, Marion and Harrison, at the Morgantown Country Club on the evening of October 3, 1939. Dinner was served at 6:30 o'clock and there was a good representation of visiting physicians.

The speaker of the evening was Dr. J. O. Rankin of Wheeling, who gave a very interesting and practical talk on "The Management of Fractures." Dr. Rankin was an able substitute for Dr. R. Arnold Griswold of Louisville, Kentucky, the scheduled speaker, who was unable to attend because of illness.

CARL E. JOHNSON, *Secretary.*

OHIO COUNTY

Two highly interesting meetings of the Ohio County Medical Society were held at the Ohio Valley General Hospital, Wheeling, during the month of October. On October 6, Dr. Temple Fay, Professor of Neurology, Temple University, Philadelphia, spoke on "The Fundamental Basis of Attack Upon Five Problems in Medicine." Discussion was opened by Dr. M. B. Williams and Dr. H. R. Sauder.

Dr. W. James Gardner of the Cleveland Clinic, Cleveland, Ohio, was the guest speaker at the October 20 meeting, on the subject, "Intracranial Complications of Upper Respiratory Infections."

Dr. Allen F. Voshell, Professor of Orthopedic Surgery, University of Maryland, Baltimore, will address the November 3 meeting of the society on "A Discussion of Fracture Fundamentals and Errors."

R. W. LUKENS, *Secretary.*

PARKERSBURG ACADEMY

The Academy of Medicine of Parkersburg met at the St. Josephs Hospital, Parkersburg, on October 4, 1939, with Dr. W. R. Goff, president, presiding. Dr. Goff introduced the speaker, Dr. William S. Love, Jr., Associate Professor of Medicine, University of Maryland School of Medicine, Baltimore, who presented an extremely interesting paper on "Congenital Heart Disease," illustrated with lantern slides.

There was an unusually large audience in attendance and the paper was very much enjoyed.

A. C. WOOFTER, *Secretary.*

PRIMARY PERITONITIS

A reduction of more than 50 per cent in the mortality rate from primary peritonitis (inflammation of the membrane lining the abdominal walls) in infants and children by means of early operation, abdominal drainage and treatment with sulfanilamide or a specific serum is reported by William E. Ladd, M.D., Thomas W. Botsford, M.D., and Edward C. Curnen, M. D., Boston, in *The Journal of the American Medical Association* for Oct. 14.

Early operation is necessary to determine the organism causing the peritonitis, and then drainage of the abdominal cavity should be instituted. This should be followed immediately by adequate treatment with sulfanilamide if the offending organism is the streptococcus or with type specific serum if the organism is the pneumococcus.

In discussing the death rate from this disease the authors point out: "It has been universally accepted that it has a high mortality rate. However, when the present series of cases is divided into those in which specific treatment was and was not given, there is a striking difference in the rates. In the pneumococcic group with early operation and specific therapy, the rate is only 12.5 per cent, in contrast to 83.3 per cent in those without the advocated treatment. On the other hand the streptococcic group presents a less striking but significant drop in the mortality rate of 72 per cent to 28.5 per cent in the corresponding groups."

General News

RURAL MEDICAL SERVICE

A voluntary contribution of more than $70,000 in medical service was turned over to Governor Holt and the State Department of Public Assistance on October 14 by the medical profession of West Virginia. The contribution was in the form of due bills or credit slips on the services of the state's surgeons and specialists and was presented to Governor Holt by Dr. Ray M. Bobbitt, Huntington, president of the West Virginia State Medical Association.

Approximately 100 surgeons and specialists participated in the voluntary move and their joint contributions were turned over with the understanding that the money saved by virtue of the contribution would be utilized for rural medical service. It was pointed out by Dr. Bobbitt that the rural medical program of the Department of Public Assistance had been materially handicapped through the reduced appropriation of the last legislature. Realizing that quick action was necessary before winter, the medical profession inaugurated the voluntary contribution idea as a solution of this problem.

For the fiscal period ending last June 30, the Department of Public Assistance spent approximately $250,000 for the medical and surgical care of their general relief clients. This has been reduced by 20 per cent for the next biennium. The $70,000 contribution of the medical profession will be utilized almost entirely for surgical procedures during the next two years. By eliminating the DPA surgical costs, funds for the medical program should be larger than ever before.

Dr. Bobbitt pointed out that it was not the purpose of the contribution to save money for the state, but to make it possible for the Department of Public Assistance to broaden its medical service activities in areas where such services were most needed.

In accepting for the state, Governor Holt assured the doctors that whatever was saved through their contribution would be utilized to provide more complete medical service for the state's relief clients. He stated that the contribution was more than a matter of dollars and cents, but was a contribution in human health and happiness.

The surgeons and specialists who participated in the contribution signed credit agreements authorizing the Department of Public Assistance to draw on their services in an amount designated by the contributing doctor. The total figure was $73,600. Only surgeons and specialists were approached on the service contribution idea and all contributions were on a purely voluntary basis.

SOUTHERN MEDICAL MEETING

November 30 will be Thanksgiving Day in Memphis, Tennessee. After much careful consideration, the officers and councillors of the Southern Medical Association have decided to stick to their original dates of November 21-24, 1939, for their thirty-third annual meeting in Tennessee's largest city. An attendance of approximately 5,000 southern physicians and surgeons is expected.

The program for Memphis will follow in general the plan of recent meetings. Tuesday will be "Memphis" day, a program of short clinical presentations by physicians of Memphis. A general clinical session, a program arranged by the president, will be conducted on Wednesday morning. Beginning Wednesday, the nineteen sections of the Association and the three co-joint meetings will convene. A general session featuring the address of the president, Dr. Walter E. Vest of Huntington, followed by the President's Reception and Ball, will be on Wednesday evening. As usual the alumni reunions will take place on Thursday night.

Most of the scientific sessions, the technical and scientific exhibits, and the registration will be found in the Municipal Auditorium within comfortable walking distance of the hotels. Hotel reservations may still be obtained through the Hotel Committee, Southern Medical Association, Box 224, Memphis, Tennessee.

The following round trip rates, including pullman, from key cities in West Virginia have been secured for the benefit of members who are planning the Memphis trip:

Ronceverte	$44.40
Charleston	42.00
Huntington	39.25
Clarksburg	49.00
Wheeling	49.00
Parkersburg	45.00

Pullman fares are based on seat accommodations to and from Cincinnati and lower berth from Cincinnati to Memphis and return. On the return from Memphis, both morning and evening schedules are available, making direct connections at Cincin-

nati. Trains leaving West Virginia on Monday morning will arrive in Memphis on Tuesday morning in time for the convention opening.

GOVERNMENT VACANCY

The United States Civil Service Department has announced open competitive examinations for positions as senior medical officer at $4,600 per year, medical officer at $3,800 per year, and associate medical officer at $3,200 per year. Applications must be on file with the United States Civil Service Commission at Washington not later than November 13, 1939. Application forms may be obtained from the Secretary, Board of United States Civil Service Examiners, at any first class postoffice or from the Civil Service Commission at Washington.

The vacancies include Public Health Service, Veterans' Administration, Civil Aeronautics Authority and Indian Service.

NEW MEDICAL JOURNAL

We take this opportunity to welcome the *North Carolina Medical Journal* as the newest addition to the ranks of state medical journalism. North Carolina's official organ was formerly *Southern Medicine and Surgery*, published jointly by the medical associations of the two Carolinas.

Dr. Wingate M. Johnson of Winston-Salem will serve as editor of the new publication, with Dr. T. W. M. Long, Roanoke Rapids, serving as secretary and business manager.

COMMUNICATIONS

PHYSICIAN WANTED

WEST VIRGINIA MEDICAL JOURNAL,
Gentlemen:—

We would like to have a doctor locate in our village and would like to bring the location to the notice of someone thinking of making a change.

Our village only has about 250 people but is located in one of the very best farming communities in the state, with a splendid class of people, 11 miles from Marlinton, now our closest doctor, and 16 miles to a doctor in the other direction. We are on State Route 219 and our side roads are mostly WPA built and can be traveled all times of year in a car.

Our doctor was reared here and practiced for 40 years but for about two years has been in an invalid chair and does almost no practice so the field would be entirely open.

Very truly yours,
J. K. Marshall,
Hillsboro, W. Va.

BOOK REVIEWS

DISORDERS OF THE FOOT

Functional Disorders of the Foot—Their Diagnosis and Treatment, by Frank D. Dickson, M. D., and Rex L. Diveley, M. D., published by J. B. Lippincott Company, Philadelphia, $5.00.

This book was written by two well known Kansas City orthopedic surgeons and is essentially practical in its viewpoint. There is little theoretical discussion, readers being referred to Dudley Morton's book on the foot for a study of this aspect of the problem.

The anatomy and physiology of the leg and foot are adequately covered and a separate chapter is devoted to examination of the foot. A good deal of space is devoted to foot imbalance in childhood and adolescence and its treatment by means of shoe corrections, stretching, casts and surgical procedures.

The chapter on flat feet in adults is most thorough and the various types of arch supports from simple rubber pads to Whitman plates are well described and their indications clearly set forth. Pes cavus, hallux valgus and metatarsalgia, are given prominence, varying directly with their importance. The treatment of rarer conditions such as hammer toe and hallux rigidus is also entered into in detail.

The discussion of foot apparel with various ways of altering shoes by the addition or subtraction of leather pads and bars is very helpful. Affections of the nails, skin of the feet, the various ways in which general systemic diseases affect the feet, methods of strapping the foot and various exercises, are covered at the end of the book.

This book can be recommended to the general practitioner as a contribution to his knowledge of the causation and treatment of the more common foot disorders. It will also stimulate interest in foot problems among doctors who should and could treat foot disabilities.

Public Health

The material in this monthly column is compiled and furnished by the West Virginia State Health Department

STATE HEALTH CONFERENCE

Plans for the annual State Health Conference at Fairmont on November 6-8, are progressing nicely. The opening session will be at 2:00 p. m. on Monday, November 6, and the tentative plans include a meeting Monday night, with the banquet on Tuesday night.

Among the speakers on the tentative program are Dr. Joseph Mountin, assistant surgeon, U. S. Public Health Service; Miss Marjorie Heseltine, nutrition specialist of the Children's Bureau; Dr. Edward Daily, director Maternal and Child Hygiene Division, Children's Bureau; Dr. H. O. Henderson, head of dairy husbandry, West Virginia University; Dr. Halbert Dunn of the Bureau of the Census and many others.

HEALTH DEPARTMENT CHANGES

Dr. Thos. H. Blake, for a year director of county health work, resigned effective September 1, to go into private practice at St. Albans.

Dr. Bruce Pollock, director of the Jackson Health District was appointed to take Dr. Blake's place, assuming his duties at once.

Dr. M. F. Raine of Fayetteville, was named acting director of Jackson District, replacing Dr. Pollock.

Dr. John F. Cadden, director of the Bureau of Industrial Hygiene, since December 1, 1936, accepted a similar position with the Viscose Company at Roanoke, Virginia. Mr. Edmond T. Roetmann, assistant director of the Bureau of Industrial Hygiene, was named acting director.

Dr. C. N. Scott for several years director of the Bureau of Venereal Disease, accepted a position as medical director for the Viscose Company at Nitro, West Virginia.

TUBERCULOSIS MEETING POSTPONED

Because of the illness of Mr. George Rowell, executive secretary of the West Virginia Tuberculosis and Health Association, the annual meeting of that organization was postponed from September until the early spring. Time and place will be announced later.

Woman's Auxiliary

AUXILIARY EXECUTIVE BOARD MEETING

The executive committee of the Woman's Auxiliary to the West Virginia State Medical Association met with a luncheon at the Charleston Woman's Club on Friday, October 6. Mrs. Willis K. West of Oklahoma City, president of the Woman's Auxiliary to the Southern Medical Association, and Mrs. Rollo K. Packard of Chicago, president of the Woman's Auxiliary to the American Medical Association, addressed the board.

Mrs. V. E. Holcombe, president of the Woman's Auxiliary to the West Virginia State Medical Association, presented the speakers and introduced Dr. W. O. McMillan of the state advisory board of the Auxiliary; Dr. Claude B. Smith and Dr. H. M. Beddow, of the advisory board of the Kanawha Medical Society's Auxiliary, and Dr. Thomas Reed, president of the Kanawha Medical Society.

Mrs. Packard asked the Auxiliary to stress "Public Relation Functions of the Auxiliary" in their work this year. She stated that it was their duty to acquaint the public with the advancements of medical science, giving them adequate medical literature, and placing before them exact facts in regard to the services of the medical profession.

Mrs. West of the Southern Medical Auxiliary explained the functions of her organization. It was interesting to note that the Auxiliary to the Southern Medical Association pays no dues. Mrs. West stated that their activities are more social, that is, one of their aims is to stimulate friendships and make contacts to aid outstanding projects. The first outstanding project of the Southern Medical Auxiliary is the Jane Todd Crawford Fund. It is to be a living memorial, and a benefit throughout the years. The local Auxiliary to the Kanawha Medical Society has made it a point to donate $5.00 per year to this fund.

A number of out-of-town guests attended Friday's board luncheon. They were: Mesdames Mattie Swann, James R. Bloss, H. E. Beard, Edwin J. Humphrey, Gilbert Ratcliff, all of Huntington; George W. Easley, Williamson; J. R. Tuckwill, A. H. Stevens, Charles L. Parks, H. V. Thomas, John P. Helmick and Philip Johnson, all of Fairmont; H. F. Troutman, Page; George F. Evans, H. H. Esker, S. S. Hall, all of Clarksburg; W. H. Price, Chattaroy; S. A. Ford, Edwight;

F. G. Prather, Wharton; P. R. Gerhardt, Van; W. V. Wilkerson, Prenter; A. E. Lambert, South Charleston; E. H. Starcher, Earling; B. D. Smith, Omar, and J. L. Patterson, Holden.

PUBLIC RELATIONS

One of the main objectives of the Woman's Auxiliary to the West Virginia State Medical Association is to extend, by the aid of its members, the aims of the medical profession which looks to the protection of public health and to the advancement of public health education. It is the function of the Department of Public Relations to promote this objective.

In an address to the Executive Board of the Auxiliary to the West Virginia State Medical Association at a meeting held recently in Charleston, Mrs. Rollo K. Packard, president of the Auxiliary to the American Medical Association, defined public relations and health education as follows:

"Public relations consists largely in acquainting the public with the work and the accomplishments of the American Medical Association and the medical profession.

"Health education consists largely in acquainting the public with the advancement of medical science and the necessity of seeking adequate medical care for the various illnesses and the necessity of continued medical research both in the diagnosis, treatment, and prevention of disease, and the part the physicians play in the program of the various health agencies of the country."

The work of the Department of Public Relations being thus specifically designated, the point now to be considered is the method of procedure. Whether the work is being undertaken by national committee or by the state and county committees, the general approach is the same.

The whole thought underlying public relations as related to the Auxiliary is that the wives of doctors, in an organized group, shall serve as a liason between the medical profession and the laity. This is not an easy task. It is a most delicate mission requiring intelligence, tact and knowledge.

If the wives of doctors are to serve as proper emissaries for the medical profession, they must themselves be well informed upon the various phases of medical economics. Therefore, the very first thing to stress is the education of individual members. County Auxiliary programs should be planned with this in mind. Needless to say, the personal desire on the part of each member to inform herself on these matters is indispensable, but here again, the inspiration and impetus to do so can and should be the outgrowth of the planned Auxiliary program.

Auxiliary members should be informed on the work being done by the American Medical Association. They should know the attitude of this organization toward national health issues, toward the Wagner Health Bill and other legislation pertaining to health and the practice of medicine. Much of this information can be obtained by reading the *A.M.A.* and WEST VIRGINIA MEDICAL JOURNALS.

Auxiliary members should be familiar with the work of the State Board of Health and of their own county health department. They should acquaint themselves with the health program of the various lay organizations in the community. They should read current books and magazine articles pertaining to the medical profession. They should be familiar with "*Hygeia*" and the "*Handbook for State Auxiliaries.*"

Doctors' wives usually take a prominent part in the social and civic activities of their community. With an adequate back log of knowledge, they can be an influence in any group. Many will be called upon to serve on committees and boards of organizations which include health education as a part of their program.

Here is an opportunity to render assistance to other groups interested in public health. Whenever it is possible to tactfully do so, Auxiliary members should offer to supply material or speakers for these health programs which should be obtainable through the Auxiliary. By this means lay groups are encouraged to form the habit of turning to the medical profession for information and advice on matters of health.

As an organized group, the Auxiliary can be a positive factor in directing public opinion in the trends approved by organized medicine as well as in the dissemination of authentic health information. For this purpose every Auxiliary should keep on file a list of available qualified speakers approved by the local medical society, as well as a complete list of reference material on health such as literature, educational films, radio broadcasts, exhibits, et cetera, obtainable from the American Medical Association, so that when the request comes from lay groups, the Auxiliary will be able to supply informed speakers and approved material.

Further contact with the public may be made in a number of ways. It is recommended that each Auxiliary sponsor at least one well planned program a year on health open to the public. Other projects suggested are the sponsoring of essay contests on health subjects in the schools, the judges to be from the local medical society; the promotion of radio broadcasts on health; effort to increase *Hygeia* subscriptions; and close cooperation with all groups engaged in public health work.

All public relations projects attempted by an Auxiliary must first be approved by the Advisory Council.

So far this year, the state committee on Public Relations has placed a speaker on the program of two state organizations. Dr. W. W. Bauer of the Health Education Department of the A. M. A. addressed the Parent-Teacher Convention in Bluefield in October, and will also appear on the convention program of the State Educational Association which meets in Wheeling in November.

A request has come from the West Virginia Federation of Women's Clubs for a health speaker on the program of their state convention to be held in Huntington next May. The state committee welcomes this opportunity and will secure a suitable speaker for the occasion.

In these unsettled times, no phase of Auxiliary work is of greater importance or requires greater finesse than that of Public Relations. A too aggressive attitude on the part of the Auxiliary may tend to defeat the very purpose for which the program was designed. Whether contacts are made by individuals or through the Auxiliary, they should be characterized by knowledge and tact, tempered with dignity and restraint.

Let us be alert to our opportunities.

FAYETTE COUNTY

The Woman's Auxiliary to the Fayette County Medical Society held their September meeting on the 21st at the Faymont Hotel at one p. m. Mrs. C. W. Stallard, first vice president, presided at the meeting. There were nine members present. Mrs. Ralph Hogshead spoke to the assembly on the transactions of the Auxiliary at the July state meeting at White Sulphur Springs. Programs were outlined for the coming year.

ELIZABETH K. DAVIS, *Secretary*.

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HARRISON COUNTY

The Woman's Auxiliary to the Harrison County Medical Society met on October 5 at the Stonewall Jackson Hotel, Clarksburg. Mrs. H. H. Esker, president of the Auxiliary presided over the meeting. Eighteen members were present. Mr. H. R. Bartle of Kansas City spoke on the subject of the Community Chest.

A donation was made to the Jane Todd Crawford Memorial Fund of the Southern Medical Association. There was also a general discussion in regard to the establishment of a scholarship fund by the group. The system of credits and awards in connection with Auxiliary work was discussed and the Auxiliary decided in favor of it.

The next meeting of the Harrison Auxiliary will be on November 2 at the Hotel Gore.

MRS. C. F. FISHER, *Secretary*.

KANAWHA COUNTY

The Woman's Auxiliary to the Kanawha County Medical Society met on September 12, 1939 at the Woman's Club, Charleston. Mrs. V. L. Peterson, president, presided and there were forty members present. Mr. Joe W. Savage, executive secretary of the State Association was the guest speaker. His subject was the "Wagner Bill." Mrs. V. E. Holcombe, State Auxiliary president, also addressed the group on "Looking Forward to Auxiliary Work."

On October 6, 1939, the Executive Board of the State Auxiliary Association will meet in Charleston and the business of entertaining them was discussed.

The next meeting will be held at the home of Mrs. R. L. Anderson on October 10.

MRS. RALPH E. PENCE, *Secretary*.

LOGAN COUNTY

The Woman's Auxiliary to the Logan County Medical Society held a luncheon meeting at the Appalachian Recreation Room on October 3, 1939. Mrs. D. F. Moore, president, presided and twenty members attended. The group discussed the problem of tuberculosis and also presented reports from the state meeting at White Sulphur.

Their next meeting will be held the first Tuesday in November at the home of Mrs. Starcher at Earling.

MRS. J. A. STUMBO, *Secretary*.

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*"Treatment of Acute Anterior Urethritis with Silver Picrate," Knight and Shelanski, AMERICAN JOURNAL OF SYPHILIS, GONORRHEA AND VENEREAL DISEASES, Vol. 23, No. 2, pages 201-206, March, 1939.

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MARION COUNTY

The Woman's Auxiliary to the Marion County Medical Society held their September meeting on the 26th at the Fairmont Hotel, with Mrs. J. R. Tuckwiller, president, presiding. Eighteen members attended. Miss Helen Dobbie from the Department of Public Assistance spoke on the Wagner Act. Mrs. Philip Johnson and Mrs. Emery Wise gave reports from the State Meeting at White Sulphur Springs, July, 1939. The program for the following year and the Auxiliary's finances were discussed. Next meeting will be on October 31 at the Fairmont Hotel.

MRS. NORMA H. DAVIS, *Secretary*.

RALEIGH COUNTY

The Woman's Auxiliary to the Raleigh County Medical Society met on September 25 at the Beckley Hotel for a luncheon and program. Mrs. E. S. DuPuy presided over the meeting at which twenty-three members were present. The Beckley group had as guest speaker Mrs. V. E. Holcombe of Charleston, State Auxiliary president. Mrs. Holcombe spoke on Auxiliary objectives. Mrs. E. S. DuPuy also addressed the gathering and gave an outline of the program for the local chapter during the year.

Ten dollars was subscribed for the scholarship fund sponsored by the State Auxiliary.

The next meeting will be held at the Beckley Hotel on October 30.

MRS. W. C. MAYS, *Secretary*.

SULFANILAMIDE WARNING

Recent reports that sulfanilamide has proved beneficial in the treatment of tuberculosis drew a warning recently from the National Tuberculosis Association. The Association called attention to a report in the current issue of The American Review of Tuberculosis on sulfanilamide and tuberculosis.

Here the serious consequences which might ensue should tuberculosis sufferers take sulfanilamide compounds for the treatment of this disease are emphasized by Dr. H. J. Corper, research director of the National Jewish Hospital of Denver, Col. Dr. Corper and two associates prepared the report on the basis of findings at the Denver Hospital.

Results of their tests do not mean that a tuberculosis patient who has developed pneumonia or streptococcus infection cannot use the drugs as prescribed for those conditions, but that the use of the

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drug should be confined to the treatment of pneumonia and streptococcus infections.

"The tests have demonstrated," said Dr. Corper in summarizing the survey, "that the utmost caution is required in evaluating the action of the drugs in tuberculosis.

"When given for a short time to man and animals, sulfanilamide and similar drugs are not evidently poisonous, but, if given over an extended period, become profound blood and cell poisons.

"It is these effects which have led to the erroneous deductions. The animal that is poisoned from the prolonged use of large amounts of sulfanilamide and allied drugs, such as sulfapyridine, cannot produce tubercle cells in certain organs as readily as ordinary tuberculous animals do, and so two things happen. In the first place, a deception occurs in that these organs only appear to have less tuberculosis; secondly, but ever more important, since the tubercle cells are the ones that actively fight tuberculosis and help maintain the health of the individual not treated with sulfanilamide, the injury of these organ cells as well as the blood cells actually is harmful to the patient, rather than an aid in fighting his tuberculosis."

OBSTETRICAL EXAMINATIONS

The written examination and review of case histories (Part I) for Group B candidates for the American Board of Obstetrics and Gynecology will be held in the various cities of the United States and Canada on Saturday, January 6, 1940, at 2:00 p. m. Formal notice of the place of examination will be sent each candidate several weeks in advance of the examination date. Candidates who successfully complete the Part I examination proceed automatically to the Part II examination held in June, 1940.

Candidates for reexamination in Part I must request such reexamination by writing the secretary's office not later than November 15, 1939. Candidates who are required to take reexaminations must do so before the expiration of three years from the date of their original examination.

The general oral and pathological examinations (Part II) for all candidates will be conducted by the entire board, meeting in Atlantic City, N. J., on June 8, 9, 10, and 11, 1940, immediately prior to the annual meeting of the American Medical Association in New York City.

Application for admission to Group A, Part II examinations must be on file in the secretary's office

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not later than March 15, 1940. After January 1, 1942, there will be only one classification of candidates, and all will be required to take the Part I and Part II examinations.

For further information and application blanks, address Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh.

DERMATOLOGISTS TO MEET

About 600 leading dermatologists from all parts of the nation are expected to attend the second annual meeting of the American Academy of Dermatology and Syphilology at the Bellevue-Stratford Hotel, Philadelphia, November 6 to 8 inclusive. Session will be held in the form of symposia, special lectures in "courses" lasting from one to four hours each, and numerous luncheon round table discussions. There will be over 50 lecturers on the three day program including the guest speaker, Dr. Cornelius P. Rhoads of Rockefeller Institute, New York, who will speak at 11 a. m. Monday, November 6 on "Vitamin B Complex." Clinical presentations will take place at Jefferson Medical School, Philadelphia, all day Tuesday, November 7.

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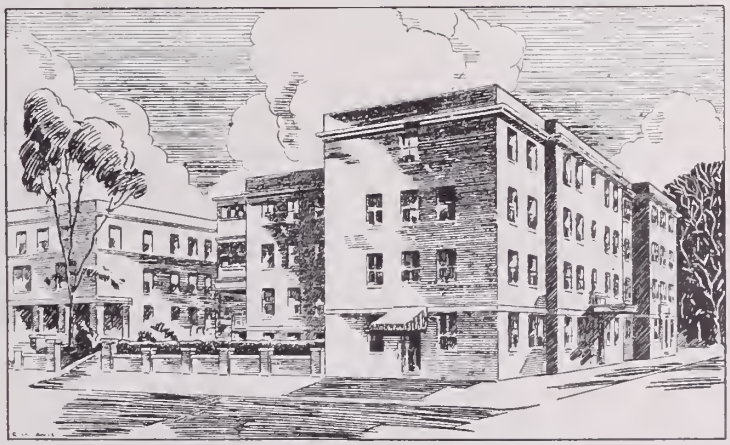

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TUBERCULOSIS ABSTRACTS

(Continued from page 531)

tion, were encountered in six with death in two. Cardiac failure, which accounted for the two deaths, was the outstanding complication. Other important complications were interference with the cough mechanism (two patients), gastric disturbance (belching and a sense of fullness of the stomach) annoying but not serious (three patients). The fact remains, however, that the treatment of tuberculosis does not always permit a safe and sure choice of therapy. Phrenic nerve interruption may, in individual cases, prove to be accompanied by the least risk.

Both temporary and permanent phrenic nerve interruption have their place. A temporary phrenic nerve interruption is indicated (1) when the problem is of an emergency nature, as in hemorrhage or active disease requiring immediate collapse therapy when other collapse measures cannot be instituted at the moment, and (2) when other collapse measures such as pneumothorax or thoracoplasty, are in prospect. A permanent phrenic nerve operation is indicated when the operation is carried out as the sole therapeutic measure in the attempt to cure the patient after other collapse procedures have been considered unsuitable, or are plainly contraindicated.

The danger today is not that too many phrenic nerve operations will be performed or that they will be undertaken in an indiscriminate manner, but that the operation will be discarded. This would be unfortunate, for phrenic nerve interruption appears to have value in 15 to 25 per cent of patients. At times it may be the simplest means for saving a patient's life. The operation, however, should be restricted to properly selected cases.

Phrenic Nerve Interruption, J. W. Cutler, M. D., Amer. Review of Tuber., July, 1939.

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THE CHARACTER AND SIGNIFICANCE OF HEART PAIN

(Oration on Medicine)

By R. O. ROGERS, M. D.
Bluefield, West Virginia

This paper is concerned solely with that type of heart pain which is dependent upon an inadequate blood supply to the myocardium. It is frequently described under the caption of cardiac ischemia. The public knows it as angina pectoris.

The mechanism of cardiac ischemic pain will not be considered except to assume that the pain is evidently the expression of myocardial anoxemia and is probably similar in its mode of production to the intermittent claudication of Buerger's disease and the pain produced in any actively contracting muscle by cutting off or limiting its blood supply.

Of the several conditions causing an inadequate blood supply and consequent pain, obstructive disease of the coronary arteries themselves is the most important. The vessels may be involved either at their orifices or along their trunks. In the case of the former the narrowing is nearly always in consequence of syphilitic aortitis. More commonly the obstruction occurs in the vessel trunks and their branches and is atherosclerotic in type. This change in the vessel wall may be so slight as to give no symptoms at all and be recognized only at autopsy. Occurring to a degree to be clinically manifest, the pain that develops as a consequence of the restricted blood supply may be mild or severe and may be provoked by slight or by considerable effort. A branch may progress slowly to complete occlusion without infarction and the pain may render the patient totally bedfast for the time. The structural changes in the vessel wall provide a favorable background for clotting and frequently acute occlusion with infarction occurs.

In terms of atherosclerotic change one can visualize differing degrees of obstruction giving rise to pain varying from the mildest transient type of angina pectoris to the persisting and agonizing pain of frank coronary thrombosis. Anginal attacks often precede, frequently for a long time, a frank thrombo-

THE AUTHOR

Dr. Richard O. Rogers, Medical Director, Bluefield Sanitarium, Bluefield; graduated Medical College of Virginia; Internist; pioneer in Group Hospitalization Insurance Plans.

sis and they may follow in a case of thrombosis where there has been no preexisting pain.

This close relationship between angina pectoris and coronary thrombosis suggests that the two conditions are one and the same, differing only in the extent of the underlying pathology, and justifies the frequent practice of describing them under the caption of coronary heart disease. One must not lose sight of the fact, however, that the cause of pain is an inadequate myocardial blood supply and that obstructive coronary disease is but one, although a very important one, of several sources of a deficient blood supply. In the case of cardiac hypertrophy, for instance, the demand for an increased volume of blood may be a larger factor than any obstruction in the coronary vessels. Again, it is a well known fact that anginal attacks, often of a severe degree, are frequently associated with an incompetent aortic valve. The coronary arteries get their maximum refill in the rest period of the heart, and in the presence of a very low diastolic pressure, which obtains in aortic regurgitation, the failure of the coronary vessels to fill is the factor rather than obstruction. The same condition obtains in a heart going at a terriffic rate, as in paroxysmal tachycardia. Finally, certain contributing factors in the production of myocardial anoxemia and consequent pain must not be overlooked, such as a deficient oxygen carrying power of the blood in severe anemia and in breathing an oxygen poor atmosphere.

Because, therefore, the cause is not always the same and because the clinical expression of each is quite different, it is probably better, from the standpoint of treatment and prognosis, to consider angina pectoris and coronary thrombosis separately.

ANGINA PECTORIS

Angina pectoris is to be defined as a symptom complex associated with several factors all of which give rise to an inadequate myocardial blood supply. It is conceivable that a situation of myocardial ischemia and pain may occur in a normal person, as it actually does some times in an athlete untrained for a hard task, but this is of academic interest only. Clinical angina pectoris was first described by Heberden[1] in 1768. The sole feature is pain of a characteristic type occurring usually during effort. It may be very trivial and pass off in a few minutes after rest or it may be agonizing. Ordinarily it is relieved promptly by a nitrite. If it persists for more than a half hour, it is probably not angina. More often the patient describes a pressing, gripping, choking, burning, or strangling sensation. In the typical attack, the pain or discomfort starts and becomes maximal behind the upper or midsternal region. It may begin, however, over the lower sternum, in the cardiac apex region, over the front of the chest, in the neck or face, in either arm, and rarely in the upper abdomen. Wherever the pain starts, it is usually felt later behind the sternum. It may remain localized behind the sternum, but more frequently and in proportion to the severity of the substernal pain, it tends to radiate out to the arms and especially the left. Frequently there is radiation down the left arm to the elbow, the wrist and fingers, the radiation being confined to the ulnar side of the forearm and ring and little fingers. The radiated pain may be severe and cramping, but more commonly it changes to a numbness and tingling. Depending again on the severity of the primary pain, radiation may include the right arm also. According to Paul White[2] radiation to the left arm alone is 25 times more frequent than to the right alone, but radiation to both occurs often, being one quarter as common as to the left alone. Other and less frequent areas of radiation are the neck and jaw (especially the left jaw), the back in the region of the left scapula, and both shoulders. A combination of exciting factors may be concerned in provoking an attack. A typical case is the man who takes his breakfast at the accustomed time and walking to work on a cold brisk morning finds himself leaning against a wall or a post at identically the same place day by day for relief of pain. Wayne and LaPlace,[3] subjecting

a number of patients with angina to a tolerance test by means of climbing steps, found that the amount of exercise required to produce pain in each individual was fairly constant. The duration of an attack varies from half of a minute to a quarter of an hour, but usually the pain disappears after three or four minutes of rest. Rarely it may disappear when the exercise provoking the pain is persisted in. An attack may occur independent of any effort at all and be relieved by the patient getting up and walking about. This is especially true of angina associated with aortic regurgitation. An attack very rarely may be an isolated occurrence, but as a rule attacks are repeated and occur as frequently as several in an hour or they may be as wide apart as a year.

ACUTE CORONARY OCCLUSION

Acute coronary occlusion, unlike angina pectoris, is itself a disease entity and is dependent upon pathologic changes confined entirely to the coronary vessels and consisting of thrombosis, rarely of acute embolism, of a vessel trunk or one or more of its branches. In most instances the clinical picture is so typical and the sequence of events so uniform that the accident may be recognized readily without the aid of any special diagnostic procedure.

Until Herrick's classical paper[4] in 1912 complete occlusion by thrombosis or otherwise of a coronary vessel or a large branch was looked upon as nearly always suddenly fatal. We now know that by collateral circulation or by recanalization an infarct of considerable size may heal to an extent to enable the patient to keep up useful activities for a number of years after the accident occurs.

The pain of coronary thrombosis is strikingly similar to that of angina pectoris, differing only in severity and duration and in certain events which follow an attack. The attack may be the first evidence of cardiac disease or it may occur in a patient who has had anginal pain over a varying period of time. The exciting factors of effort and emotional strain do not necessarily obtain in thrombosis, and more frequently the attack is out of a clear sky. The pain reaches its maximum severity behind the upper or midsternum in two or three minutes and is often vice-like in character. Radiation of pain may be the same as in simple angina pectoris. Rest and quiet have no appreciable effect, nor do the nitrites. The pain is agonizing and may persist for hours or days and require large repeated doses of morphine for relief.

CLINICAL SHOCK

Second in importance to pain is the development of clinical shock. This may occur simultaneously with the pain or it may come on hours or even days later and is the expression of peripheral circulatory failure with little or no evidence of congestive failure.[5] The patient has a grayish cyanosis and can usually lie flat in bed without orthopnea. In nearly all cases there is a tremendous drop in the blood pressure from its previous level. The heart sounds are distant, but the rate is usually not modified. The pulse is small and soft. All sorts of arrhythmias may occur, especially on physical or emotional stress. Vomiting and profuse sweating commonly occur at the onset. The mind is usually clear, but restlessness and excitement may develop and progress to active delirium.

Depending on the extent of myocardial infarction, a varying amount of reaction follows and the temperature may go up to 102 degrees or more and the total white cell count may be as much as 25,000. These may persist for several days. If the thrombosis involves a surface branch, a local pericarditis develops, and if the lesion is anterior, a friction rub may be heard. An intramural clot sometimes develops about the site of the infarcted area and may give rise to emboli which may plug the coronary or the general circulation. Death may occur after a few days from necrosis and rupture of an area deprived of its blood supply.

Let us consider now the significance of cardiac ischemic pain. To what extent is useful activity impaired and life expectancy altered in the case of a person who has de-

veloped clinical angina pectoris? What is the immediate and ultimate prognosis in coronary thrombosis?

The extent to which a normal life is interfered with and life expectancy is altered in the case of a person with angina pectoris is certainly a very variable thing. In most instances it will depend to a large degree upon whether the pain occurs in association with gross structural heart disease or as a result of slow changes in the coronary arteries alone. In the latter, which includes by far the greater number of cases, it is safe to say that a large number of people are capable of considerable activity up to a point where pain is produced and that many are able to lead normal lives.

It is true of course that a person may die suddenly in the first or any subsequent anginal attack, in which case death is assumed to be due to ventricular fibrillation or total cardiac standstill resulting from the shock of the attack, but the passing in this way would certainly be rare. In most instances sudden death would represent a superimposed thrombosis. Death may be independent of the anginal attacks and by way of congestive failure or heart block in patients with gross myocardial or aortic disease. Life expectancy varies within wide limits, the average in all cases being probably from five to ten years. Again, serious heart disease very materially affects the outlook. Death occurs early in angina pectoris associated with syphilitic aortitis, whereas a person with only narrowing of his coronary arteries may live 15 or 20 years or longer and actually die of some cause unrelated to his heart. Temperament and the patient's capacity and willingness for a carefully controlled life undoubtedly play important rôles in both the extent of disability and the length of life.

PROGNOSIS

The outcome in coronary thrombosis must take into consideration the immediate and the ultimate prognosis. Harlow Brooks[6] estimated that 30 per cent of his own cases died immediately or within a few hours. If the patient survives the first month, he has a good chance to live a year, and if he is going well at the end of a year, he may live a good many more years. Paul White[2] states that half of the total of all cases survive for several years, a few for 10 years or more, and reports one case as surviving for seventeen and one-half years and another for 24 years. Distressing attacks of angina pectoris may follow in a patient who has recovered from thrombosis, but on the other hand a preexisting angina may be mysteriously relieved after a frank thrombosis. Harlow Brooks[6] reports relief in this way 30 times in a series of 249 cases of thrombosis. Once a thrombosis has taken place, the tendency to occur again is increased.

LIFE EXPECTANCY

It is a fault, probably common to most of us, to appear impressive, and when it comes to serious heart disease and that in particular expressed by ischemic pain, it is too frequently the case that the patient and his family both are made to believe that a life of usefulness is at an end. An eminent cardiologist[7] has just recently stated: "There is still widely held in medical circles as well as among the laity the idea that once coronary disease becomes manifest clinically the jig is up and that the victim must decide for himself whether he prefers to die 'with his boots on' in a short while or to die as an invalid after a somewhat greater interval of time." With such a background and in a period of economic stress, of rapidly dissipated savings, and of doubtful moral values, it is not surprising that the person who comes down with a coronary episode rereads, as soon as he is able, old disability clauses of life insurance contracts to see if there is a waiting period of 90 days and if benefits are retroactive for the period or start at the end of the period. Once financially secure with his disability income, he becomes an incurable cardiac neurotic regardless of how well the physical damage to his heart may have been repaired. A lot of these people are easy victims of the persecution of illness. Off their guard, most of the time they act and behave in a normal manner,

but once the subject of their illness is brought up, the impression is invariably conveyed that death is lurking "just around the corner."

It is not intended to create the impression that all people with coronary disease are able at some time to resume a life of usefulness. For many such people the heart is crippled to a degree to make any useful activity dangerous and unwise. Nor is it insisted that a person should keep at work merely for work's sake. For any man who has developed coronary disease to any serious extent and who has reached an age of retirement and independence, a life free of care and responsibility is to be preferred, provided of course that in a lifetime he has developed some capacity to play.

THE HALFWAY PLACE

None of us would countenance the act of a person who blindly accepts his fate and prefers to die "with his boots on," but somewhere between this act of bravado and a medically directed or self-imposed status of invalidism there should be a halfway place which would serve the best interests of most patients. My earliest recollection when just out of medical school is in connection with a distinguished surgeon who for many years kept at his work after it became necessary to have placed at convenient places about the hospital supplies of perles of amyl nitrite to be inhaled for attacks of angina pectoris. Some time ago I had to write a third letter before an Italian laborer was allowed to return to his employment of working inside of a railway freight station. I had followed his case in the hospital when he had an apex infarct and his life for some time hung in the balance. He had made an apparent recovery and was entirely free of pain. For a time he was denied reemployment because he might drop dead at his work. Such catastrophe was much more liable to overtake him while walking the streets and worrying about the support of his family. About the same time that bad luck came to the Italian laborer a business executive was also in hospital for coronary thrombosis. This business executive now after three years is more willing to share responsibilities with his subordinates, he is less active in his garden, and for the first time in his life he has become vacation wise. The important thing is the fact that he is still able to carry on.

I think, then, that it behooves us as doctors to assume a more optimistic attitude and abandon the conception that the "jig is up" for the patient who has developed coronary disease. Even though for these people death is not as much the far removed event as it is for the average normal person, there is certainly no occasion for the outlook to be made gloomy. There is much, on the other hand, to commend an atmosphere of cheerfulness and of joy in a continued useful life, even if activities are materially restricted.

307 Ramsey St.

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MUSCULAR COMPRESSION

A single muscular compression may result in paralysis of an outer nerve but such paralysis may not become evident until hours, days or weeks after the injury, J. M. Nielsen, M.D., Los Angeles, points out in *The Journal of the American Medical Association* for November 11.

The delay is attributed to the fact that although the nerve may have escaped injury at the time of the muscular contraction, later changes in the area of the compression may constrict it.

RECENT ADVANCES IN THE DIAGNOSIS AND MANAGEMENT OF PLACENTA PRAEVIA *

By THADDEUS L. MONTGOMERY, M. D.**
Philadelphia, Pennsylvania

To a group of trained obstetricians it is unnecessary to point out the importance and serious nature of placenta praevia as a complication of pregnancy, or to dwell at any great length upon the rôle which it plays in fetal and maternal mortality. Looking back over the records of an eight year period in Philadelphia (1931-1938), I find that of the 1,349 puerperal deaths during that time three per cent were attributable to placenta praevia; 41 mothers, therefore, died of this complication. As a cause of stillbirth placenta praevia was responsible for 2.5 per cent of the first 1,000 cases analyzed.

This condition is said to occur in one of 250 pregnancies. Doubtless in its less serious forms it is present more frequently. Oftentimes placenta praevia of the lateral type is mistaken for premature separation. This fact was observed while collecting data from the Jefferson Hospital for a paper on premature separation of the placenta some years ago. Of the 32 instances in which the diagnosis of premature separation of the placenta has been made from 1928-1933, 16 were evidently not normally situated, but rather early separations of low implanted placentae.

The primary purpose of this afternoon's presentation is to discuss the x-ray diagnosis of placenta praevia, present a technique with which some of you may be unfamiliar, and emphasize the importance of preventing postpartum hemorrhage from the placental site.

For many years dependency for diagnosis in placenta praevia has been placed upon the appearance of painless bleeding, upon auscultation of the placental bruit, and upon actual palpation of the placenta through the cervical os. Because of the peculiar nature of the underlying condition these three methods of diagnosis are open to criticism. To wait until frank hemorrhage occurs in placenta praevia is to court disaster. The localization of the placental site by the position of the uterine souffle is an undependable method of study, for the placenta may be located posteriorly and not give rise to unusual auscultatory sounds at the pelvic brim, or a very definite bruit may be present on one or the other side of the pelvis and the placenta located at some distance above the dilated uterine vessels and well in the upper uterine segment. The performance of casual vaginal examination and the effort to feel the placenta through the cervical os is certain to incite serious bleeding and possibly make of an already difficult situation a hopeless one.

Therefore, effort has been made in several directions to improve the methods of diagnosis and resort only to such procedures as are reasonably accurate and yet not disturbing to the placental site. Probably the greatest step in this direction has been the x-ray determination of placental position.

For many years it has been the general understanding of röentgenologists that the soft tissue of the uterus and particularly of the placenta could not be visualized by the ordinary methods of x-ray study. For this reason various types of opaque medium and various methods of introduction of the same have been employed during the past twenty-five years.

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First to employ lipiodol in this field was Dr. Carlos Heuser, of Buenos Aires. Heuser applied this method of study to the diagnosis of pregnancy, having the temerity to inject lipiodol solution through the cervix into the pregnant uterus. He affirmed that this method of study had provoked no disturbance of the pregnancy and that by means of it he was able to outline the peculiar contours of the early implanted ovum. Those who undertook to follow his suggestions discovered, however, that the production of miscarriage was very common. Miller and Martinez reported three cases of abortion among fifteen women who were studied by the Heuser method. As a result of these cases, the injections of media through the cervical channel during pregnancy was abandoned.

RADIO-OPAQUE INJECTIONS

The next step in the history of this field of röentgenology occurred when Menees, Holly and Miller reported a series of cases in which they had injected radio-opaque solutions through the abdominal wall into the amniotic cavity, by means of which the outline of the fetus and the contour of the placenta were made visible; in fact, so effective was the contrast media that in many instances they were able to determine the loops of cord around the neck, and the sex of the fetus. For purposes of their study some ten to fifteen c.c. of a one to one solution of U.S.P. strontium iodide solution in water was used. They reported twenty-one cases with no injuries or toxic effects in the mother. In one instance a low implanted placenta was perforated and the patient started in labor. They suggested that the method would be of value in the diagnosis of placenta praevia. This method of examination was tried out by several other clinics with less favorable results than had been reported by the original workers.

The contributions of Ude, Weum, and Urner constitute the next chapter in the röentgenological diagnosis of placenta praevia. The preliminary report of these investigators was published in 1934. They recommended the introduction of opaque media into the bladder, suggesting specifically the use of 40 c.c. of a twelve and one-half per cent solution of sodium iodide as a contrast medium. Anteroposterior and lateral x-ray plates were taken and the relationship of the fetal presenting head to the bladder was carefully noted. Unusual separation of the head from the bladder or unusual deformity of the bladder were taken to indicate the presence of intervening soft tissue which was presumed to be placenta. In the majority of cases in which these characteristic findings were noted the diagnosis was confirmed either by the clinical course of vaginal delivery and the condition of the placenta, or by the findings upon cesarean section. (Fig. 1)

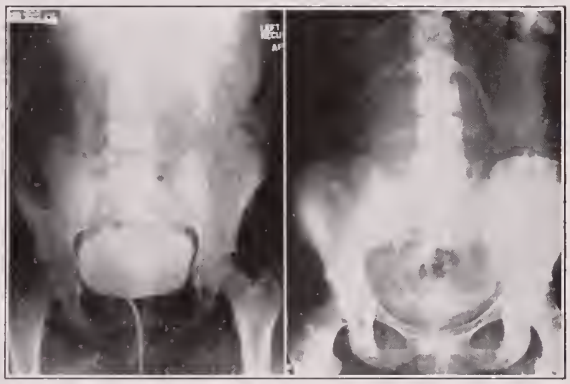

Fig. 1. Fetal head deep in pelvis, pressed against the bladder. (Ude-Urner method.)
Fig. 2. Fetal head well in pelvis. No evidence of displacement by placenta.

Further cases were reported in 1935 and the authors state, upon the basis of their ample experience: "We have found that the presenting head invariably lies directly against the lower anterior wall of the uterus unless it is displaced upward by a solid mass, either by the placenta, blood clots from a premature separation of the placenta, or from some abnormality of the fetus or pelvis." The work of Ude and Urner has received wide and favorable comment and a number of publications have confirmed the accuracy and usefulness of the method. (Priest, McIver, Friedman and McDonald, Wells, McDowell, Hall, Curran and Lynch, etc.)

The method, however, does not provide for the diagnosis of position of the placenta

when the breech, the shoulder, or some other abnormal presenting part is present, nor does it provide for a differential diagnosis of high displacement of the head in contracted pelvis. These shortcomings are acknowledged freely by the original authors. In addition, several observers have noted cases where the presenting part has been displaced above the bladder and no evidence of placenta praevia was found.

Fig. 3. Same case as Fig. 2. Arrows indicate the position of the placenta in the upper uterine segment. (Soft tissue technique of Smith.)

In 1931 the interest of Dr. R. Manges Smith, of the Radiological Department of the Jefferson Hospital, was aroused by this problem of placental localization, and he attempted to confirm the findings of Menees, et al. The injections were made in the obstetrical department and the x-ray plates taken by the röentgenologist. Excellent visualization of the fetus and of the placenta were obtained, but the method was found obstetrically to be exceedingly dangerous. In many cases premature labor was started, and in two instances the placenta was perforated and the fetus stillborn. Naturally, the method was promptly and permanently abandoned.

While examining these plates and comparing them with some of the plates of pregnancy which had been taken without contrast medium, Dr. Smith noted that in many instances the soft tissue of the placenta could be distinguished among the latter. He then began taking films of the fundus of the pregnant uterus with the soft tissue technique, the dosage for which is incorporated in this paper, and was pleased and somewhat amazed by inspection of these new films to find that without benefit of contrast medium he was able to locate the placenta in practically every instance in which it lay in the upper uterine segment. After a six month period of trial and observation he began, in 1933, making formal reports of the localization of the placenta in each instance in which patients were referred for obstetrical study.

In the presence of a normally implanted placenta (Figs. 2 and 3) the placenta will be recognized as a distinct shadow in the upper uterine segment and the presenting part of the fetus is found in close proximity to the pelvic inlet. In the case, however, of placenta praevia the shadow of the placenta is lacking from the upper uterine segment or found only in its lower portion and the fetal presenting part is elevated and separated widely from the symphysis pubic. (Figs. 4 and 5)

Fig. 4. Fetal head displaced by placenta praevia.
Fig. 5. Lateral view of the same case as Fig. 4. Arrows indicate the low position of the placenta. (Soft tissue technique of Smith.)

This method of study has proved applicable not only to head-first presentations but to other types—breech and transverse, in

which so frequently placenta praevia has accounted for malpresentation. It has the advantage further of requiring no special preparation of the patient, no injection of opaque medium, either into the uterine cavity or urinary bladder, and no local disturbance which might incite uterine hemorrhage.

It is generally possible to differentiate a placenta praevia of a lateral or marginal type from placenta praevia centralis. Dr. Smith describes his technique as follows:

1. Ordinarily no laxative or purge is given, or even an enema, inasmuch as these measures may create disturbance of the placental attachment. If necessary, the lower bowel may be emptied by gentle enema, for an accumulation of feces in the rectum and sigmoid may of itself displace the presenting part.

2. Two of the films are taken with hard technique for bone detail, the first in an anteroposterior position, with the patient lying prone on the table and the tube centered midway between the pubis and the umbilicus; the second in the lateral position with the tube centered over the trochanter of the femur. Then a lateral film is made with soft tissue technique with a tube centered at the lumbar region to reveal the contour of the body and fundus of the uterus. The dosage for this latter plate is indicated in the accompanying table:

Tube Distance	Thickness of Patient	KV	MA	Time in Seconds
30	24 cm.	70	40	8 Anteroposterior
30	29 cm.	70	40	14 Low Lateral
30	26 cm.	65	40	5 High Lateral
30	27 cm.	72	40	8 Anteroposterior
30	32 cm.	72	40	14 Low Lateral
30	28 cm.	65	40	6 High Lateral
30	30 cm.	75	40	8 Anteroposterior
30	36 cm.	75	40	15 Low Lateral
30	32 cm.	68	40	6 High Lateral

Inspection of these three films affords generally sufficient information to make an accurate diagnosis of the position of the placenta, although if special conditions require, additional films by soft tissue technique may be taken at other angles. The report that is made from these plates ordinarily includes a description of the features of pelvic architecture, the relationship of the fetal parts to the pelvis, and the position of the placenta.

This method of study as developed by Dr. Smith has an important influence upon our methods of diagnosis and management in placenta praevia. For the past several years such patients have been handled in our clinic as follows:

1. At the first suggestion of vaginal bleeding the patient is placed at rest in bed, preferably under observation in the hospital. We do not wait for recurrent bleeding or extensive hemorrhage.

2. Careful abdominal palpation is performed. If the fetal presenting part is in close proximity to the pubis and nestled in the pelvic inlet, we may rest assured that an extensive or central placenta praevia cannot be present, and that at the most the placenta can be only of the lateral or less serious type.

3. If the fetal presenting part is high and resists attempts to manipulate into the pelvic inlet, the patient is referred for the x-ray examination which has been described.

4. If the report of the röentgenologist is that of an extensive or complete placenta praevia, and the conditions are favorable for operation, an elective abdominal cesarean section is performed. If the result of the x-ray study indicates a marginal or lateral type of placenta praevia, the patient may be carried to a further period of pregnancy or to full term and delivered by the vaginal route.

5. If the x-ray study reveals the presence of the placenta in the upper uterine segment, the patient is placed on an examining table, thoroughly and aseptically prepared, and the cervix inspected through a vaginal speculum. Search is made for any local bleeding point such as might be found in a cervical polyp or an acute cervicitis.

Such methods of management are, of course, applicable only to the case which is studied at the earliest sign of bleeding. Fortunately, in most instances, placenta praevia, like the proverbial rattler, gives warning be-

fore it strikes. In the presence of sudden, extensive vaginal bleeding, with the typical abdominal signs of placenta praevia, there is naturally no need to wait upon an x-ray diagnosis, for the condition present is sufficiently obvious.

This regime has been followed for the past five or six years in our department, and with its help we have been able to save, I am certain, a number of babies and possibly several mothers who might otherwise have succumbed to overwhelming hemorrhage. I might add that in private practice there have been two instances in which the diagnosis was made in this fashion and operation done before the patient had had any bleeding whatever. Under similar circumstances a patient was operated upon in the ward during the past year, one in whom the diagnosis was made by abdominal examination and x-ray study, and operation performed before bleeding appeared.

TREATMENT OF PLACENTA PRAEVIA

Under the heading of treatment it is not the purpose of this paper to consider all of those types of delivery which may be employed in the extraction of fetus and placenta, but in passing and because of its importance I would like to point out the observations of Cummyns, Berkely (J. Obst. & Gyn. Brit. Emp., June, 1936) based upon the study of 5,107 cases of placenta praevia delivered in the British Isles. The accompanying chart indicates the maternal mortality and the fetal salvage with each type of delivery. (Fig. 6)

Fig. 6. MATERNAL AND FETAL RESULTS IN TREATMENT OF PLACENTA PRAEVIA (Berkeley)

	Maternal Mortality	Fetus Alive
Internal Os Completely Covered (Over 36 Weeks)		
Caesarean section	4.1%	84.1%
Bipolar version	7.9%	14.5%
Internal version	17.6%	17.1%
Leg in breech	16.1%	34.4%
Internal Os Partly Covered (Over 36 Weeks)		
Leg down in breech	0	57.2%
Rupture membranes	1.2%	59.7%
Caesarean section	1.7%	89.2%
Bipolar version	3.4%	29.9%
Expectant	3.6%	77.1%

With the internal os completely covered by the placenta, cesarean section obviously presented the best results for mother and child. With the internal os only partly covered, cesarean section again presented very favorable results, particularly for the child, and a very low mortality for the mother. However, the rupture of the membranes in head-first presentation was followed by favorable results, and rupture of the membranes and bringing down the leg in breech proved an efficient procedure. Where lateral placenta praevia exists Berkely advises the "wait and see" policy. His general recommendations for treatment are worth reviewing. They are as follows:

1. Control the bleeding as soon as possible.
2. Do not make a vaginal examination unless prepared to embark at once upon appropriate treatment.
3. Combat the shock if such is present.
4. Take every precaution to combat septic infection.
5. Do not hasten delivery, except in cases of cesarean section.
6. Perforate the placenta, if necessary, with a sharp pointed instrument rather than blunt pressure.
7. Whenever possible treat the patient at the hospital or in a first class nursing home with expert assistants.

The principal concern of my own remarks upon treatment have to do with the prevention and combating of postpartum hemorrhage. Referring again to the 41 maternal deaths which occurred from placenta praevia in Philadelphia, we found that 36 of these died after delivery, and the careful perusal of the history indicates that the primary cause of death was bleeding and shock. This observation leads one to the belief that the accoucheur has been so intent upon the rapid evacuation of the uterus that he had failed to give proper consideration to the after effects of his procedure, to the arrest and treatment of hemorrhage which must inevitably take place from the lower uterine segment. With the placenta removed from its abnormal site

and the uterine sinuses of the lower segment exposed, the postpartum bleeding in placenta praevia is bound to be more profuse than it ever was during the antepartum period, for the contraction of the upper uterine segment has little effect upon the arrest of bleeding from lower levels of the uterus. Even under the best of circumstances some hemorrhage is certain to take place from the latter zone.

It therefore is paramount that the attendant in delivery arrange for the procuring and typing of donors and the making available of large quantities of blood for transfusion as soon as a diagnosis is established. Before such blood is available intravenous glucose solution may be given slowly by vein, and if the case is to be delivered by cesarean section, this intravenous fluid can be administered during the course of the operation. Generally by the time the operative procedure is completed blood is available and can be administered in large quantities. In not a few cases it is necessary to give several thousand cubic centimeters in order to replace the large quantity lost from the vascular tree. Such careful preparations for replacement of blood loss will save many a life in placenta praevia. I regret to say that in more than half of the series of death in Philadelphia no such preparations had been made.

It is not enough, however, to pour blood into a vein and expect it to stay in there when no provision has been made for the arrest of bleeding at the exposed placental site. I have seen blood pour from the vaginal tract as fast as it entered the median basilic vein. Some mechanical means of inhibiting placental site bleeding should be employed at the time of delivery. If the delivery is by vaginal route the birth canal should be packed from the fundus of the uterus to the vulva. There is nothing to be lost by this procedure, even when the bleeding at the time seems limited, for later on a constant low grade hemorrhage may exsanguinate the patient. (Fig. 7)

If the patient is delivered by abdominal cesarean section, the placental site should again be thoroughly tamponaged. For many years we have resorted simply to packing from above, not attempting to carry a pack into the vaginal tract from below. This measure worked fairly satisfactorily, but I have found in certain instances it was necessary to pack the vagina later in order to compress the lower uterine segment. In order to obviate this second procedure I now employ the following plan, which seems effectively to control bleeding both during and following the operation. The procedure in cesarean section is as follows:

1. When the diagnosis of placenta praevia has been made with sufficient certainty, and the conditions indicate delivery by cesarean section, the operating room is prepared for both abdominal and vaginal delivery.

2. The patient is placed in the lithotomy position, prepared, and a vaginal examination performed. The diagnosis of placenta praevia and of its type is thus confirmed on the operating table.

3. If the placenta praevia is found to be of the marginal or lateral type, the membranes

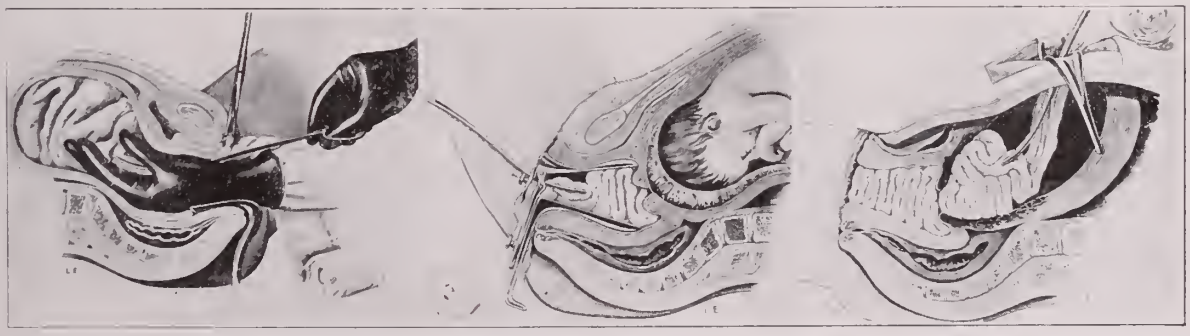

Fig. 7. Tamponage of the uterus following vaginal delivery. Fig. 8. Tamponage of the vagina immediately before performing cesarean section for placenta praevia. Fig. 9. Tamponage of the uterus through the abdominal incision. The lower segment is now firmly compressed between the vaginal and the uterine packs.

are simply ruptured and preparations made for ultimate vaginal delivery. If the placenta praevia is of the partial or complete type and the cervix closed, a snug vaginal pack is placed in the vaginal tract. This serves as a foundation for packing from above when the uterus is evacuated. (Fig. 8)

4. The patient is turned around and prepared for abdominal section. When feasible, local infiltration of one-half per cent novocaine is preferred as the anesthetic agent; otherwise open drop ether.

5. The classical type of cesarean section is employed. I can see no advantage in purposely making an incision into the hemorrhagic zone of the lower uterine segment. The classical operation permits also of more efficient tamponage of the placental site.

6. When the baby and placenta have been removed a gauze pack is inserted firmly against the cervix and lower uterine segment and the cavity of the uterus filled with the same. The uterus and abdominal wall are then rapidly closed. (Fig. 9)

7. Intravenous glucose is administered during the operation, and as soon as blood is available it is injected through the same apparatus. If the patient is under local anesthesia, the blood transfusion can be carried on during the operation; otherwise it is probably dangerous to give a blood transfusion to a patient under anesthesia.

This method of packing effectively compresses the relaxed lower uterine segment between the upper and lower tampons of gauze. Bleeding is kept at a minimum both during the operation and after. At the end of 24 hours the vaginal pack is removed. After 48 hours the uterine pack is removed. One need have no fear about reaching the uterine pack for during the 24 hours after the removal of the vaginal pack the uterine gauze works its way through the external os of the cervix and becomes easily available to the exposure of a vaginal speculum. This method of tamponage has been employed effectively in four cases of placenta praevia during the past year, and the results have been so satisfactory that I intend to continue with it.

Let me add at this point a word of caution about the general use of a vaginal pack as treatment of placenta praevia, for I would never recommend the use of the same unless delivery were immediately to be consummated. The vaginal pack has practically little effect upon the immediate arrest of bleeding. Its purpose in the procedure I have described is to constitute a foundation for uterine packing. If used alone and inserted too vigorously it will tend to further separate the placenta and in no way relieve the trying situation. While transporting a bleeding patient from home to hospital it is a great temptation to put in a vaginal pack, but the natural clotting process of the blood, along with a fall in the patient's blood pressure will probably serve better to arrest bleeding. The vaginal pack, therefore, is reserved as a part and parcel of the technique of delivery by cesarean section.

CONCLUSIONS

As a complication of pregnancy, placenta praevia will always constitute a serious menace to the life of the mother and the child. We shall probably find measures for its prevention inasmuch as the condition has to do with peculiar factors in implantation over which there can be no control.

There will always be sudden serious hemorrhages in which the fatality for mother and child will be particularly high. Fortunately, in most cases the condition gives warning signs, and under such circumstances it behooves the attending physician to pay heed and bring to bear upon the situation every diagnostic method which presents possibilities of information.

In this connection the careful performance of abdominal examination and x-ray study constitute efficient diagnostic procedures. In certain instances the diagnosis may be further confirmed by vaginal examination performed under aseptic preparation, in an operating room, where preparation has been made for either abdominal or vaginal delivery.

In the course of delivery attention must be paid to the prevention and treatment of postpartum bleeding, inasmuch as more deaths occur from it than from antepartum hemorrhage. This calls for transfusion preparation and the selection of a sufficient number of donors to supply large quantities of blood, and administration in the meantime of intravenous fluid. Glucose solutions may be used for this purpose. It calls also for operative procedures of delivery which do not traumatize, and for a technique of tamponaging the relaxed and bleeding lower uterine segment when the placenta has been removed.

When the delivery has been consummated by the vaginal route thorough tamponage of the entire reproductive canal can be accomplished from below. When delivery is by the abdominal route tamponage may be accomplished best by the insertion, first, of a vaginal pack immediately before operation, and second, of a uterine pack through the incision of the classical section.

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CHRONIC TRACHOMA

An astonishing improvement in the chronic form of trachoma (a contagious granulating condition of the eyelids) when treated with sulfapyridine is reported by M. P. Spearman, M.D., and W. E. Vandevere, M.D., El Paso, Texas, in *The Journal of the American Medical Association* for November 11.

"While realizing that adequate conclusions cannot be drawn from clinical results obtained in only two cases," the authors state, "we nevertheless were greatly impressed with the remarkable remissions of the pathologic signs. Both case had proved intractable to all other methods of treatment. Vision has improved greatly in both cases. We plan to continue our present treatment at least until maximal objective and subjective improvement is obtained."

Beneficial treatment of trachoma by sulfanilamide, of which sulfapyridine is a derivative, has previously been reported.

THE TREATMENT OF THREE SURGICAL CONDITIONS OF THE LARGE BOWEL*

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THERE are three maladies to which the large bowel is subject that dovetail into each other in various ways, especially with regard to etiology, pathology, diagnosis and treatment.

One of these is diverticulosis, a condition that affects approximately five per cent of the adult population. This condition is usually quiescent and does not produce symptoms. Only a small fraction of those who are affected with diverticulosis ever manifest any particular disturbance from the condition. These few have diverticulitis, or inflammation of one or more of the diverticuli with which the bowel may be studied, especially in the sigmoid area. Mildly inflamed diverticuli may cause, at times, acute or subacute types of diarrhea, or if the involvement is more serious, the symptoms of an acute appendicitis, generally of the left-sided sort. An inflamed swollen appendage of this character may suppurate and form an abscess that may require drainage. It may rupture into the bowel or into the bladder. It may cause symptoms of obstruction or it may cause a fatal peritonitis. In case it results in obstruction it may be necessary to do a colostomy or a cecostomy as an emergency measure in order to save the patient's life. The inflammatory tumor may come on rather slowly and may be mistaken for cancer. Complete drainage above, which puts the inflamed area at rest usually brings about recovery and a gradual absorption of the inflammatory mass. In case the disease process does not entirely subside it can then be dealt with in an appropriate manner surgically.

The large bowel mucosa, along with the other viscera, may be the seat of polypi constituting the so-called polyposis. After ulceration takes place in one or more of these polypi this condition can and does bring about the presence of blood in the stools. Degenerating polypi likewise are nearly always the forerunners of cancer; therefore, for the protection of the patient from the dangers of hemorrhage and malignancy either the polypi should be destroyed by cauterization, or the portion of the bowel bearing them should be resected.

Likewise, cancer of the bowel wall may in the earlier stages cause alternating attacks of diarrhea and constipation. At a later stage the carcinomatous nodule may break down and cause the presence of blood in the stools. These symptoms, however, are not by any means uniform and may not appear at all. At other times a gradually increasing constipation may wind up with a total obstruction calling for emergency relief measures.

Cancer of the sigmoid colon or rectum usually causes more outstanding and urgent symptoms than does a malignant involvement of other areas of the large bowel. Obviously, bleeding is usually one of the later symptoms and when present generally indicates a well advanced stage of cancer. Pain is usually a very late symptom of malignancy. More often the symptoms of discomfort are of a more or less vague nature. Likewise, the presence of a palpable mass is generally quite a late finding even then so long as the tumor is movable the case is usually operable, the usual tendency being for the

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*Read before the Central West Virginia Medical Society, Sutton, West Virginia, March 19, 1938.

cancerous growth to remain in one definite location for quite some time.

LYMPHOGRANULOMA VENEREUM

This is one of the rarer forms of venereal disease and seems to be much more prevalent in the tropical regions than elsewhere. However, this disease is widespread and owing to the fact that the rectum is often seriously involved with stricture as an end result, it becomes necessary to differentiate it from cancer. The history of exposure to a possible source of infection and the resultant train of symptoms together with the positive Frei test makes diagnosis fairly easy. However, it has been found that this test is like some others, beset with many diagnostic pitfalls.

The involved large bowel wall often becomes greatly thickened and numerous discharging sinuses may develop. If the bowel does become badly involved it may be necessary to put the affected segment at rest. To do this a transverse colostomy is done above the involved portion of the bowel. Injections of fuadin or the Frei antigen or other specific remedies, are necessary to bring about a cure. The treatment usually is prolonged. If complete cure can be brought about, the divided bowel ends may be reunited.

DIAGNOSIS

Digital rectal examination should be made a routine part of any general physical examination and in this way a great many cases of cancer of the rectum will be discovered. If, in addition to the above, the proctoscope is made use of it will bring into view growths located a little higher up than the examining finger can reach. However, aside from a thorough and careful rectal examination, our main reliance will be the adequate use of the fluoroscope by a well trained and capable röentgenologist, the bowel being prepared the day before by taking castor oil. Castor oil preparation gives the best results because of the fact that it brings about a very complete emptying of the entire intestine and in addition has the merit of not causing much irritation to the mucosa of the small bowel. For the average adult, two ounces of castor oil is taken about midafternoon of the day before the x-ray examination is scheduled, and no supper is eaten. The next morning the patient's large bowel is washed out by enemas until they return clear, a light breakfast is eaten, after which the fluoroscopic examination is made. This method usually shows the exact pathology with unerring accuracy. The old method of giving the patient barium by mouth and following it down through the course of the large bowel did not give the same satisfactory results from the x-ray point of view.

OBSTRUCTIVE SYMPTOMS

In the great majority of cases either visible blood in the stools has been noticed or there have been some obstructive symptoms. If the examination indicates that the tumor is in the right side of the abdomen, an incision is usually made in that side in the rectus muscle with a view to exploration and the institution of proper treatment. The liver is carefully palpated in order to ascertain whether or not metastatic nodules are present. Likewise the examination is carried out around the tumor for size and mobility, and the presence or absence of nodules in the mesentery and about the great vessels is noted. If conditions are favorable, the terminal ileum is anastomosed laterally to the transverse colon and the abdominal wound closed. After wound healing has taken place in a satisfactory manner, the abdomen is reopened and the malignant growth is resected. The two or three stage method of operation is often considered safest. At the time the second stage of the operation is done the right side of the abdominal cavity is usually very well walled off by peritoneal adhesions, so that there is practically no danger of an extensive peritonitis.

In dealing with cancer it must be borne in mind that the following conditions are present:

The patients are often elderly and debilitated and therefore are not to be classed as

good surgical risks. Cancer, if present and untreated, will ultimately cause death. Cancer may recur after operation. On the other hand, it is to be expected that 70 to 80 per cent of such cases well handled should survive operation. Of these, those in which the growth is too far advanced may hope to get temporary relief and some prolongation of life. Others will get complete relief over a longer period but will later on have a recurrence of the pathological process, while a still smaller group can be expected to get permanent cures. The comparative slowness of spread in large bowel malignancy is a basic principle which favors surgical treatment. The growth of large bowel cancer is as a rule slow, and metastasis is somewhat late in taking place. However, it is possible for the growth to progress to a very considerable size before it is noticed by the patient. Later the growth usually metastasizes, generally to the abdominal lymphatics and liver, rather rarely to bone. Some spreading of the growth also takes place by means of the blood vessels in the immediate area adjacent to the tumor. As Brown and Warren point out, the longer the duration of the growth, the greater the number of visceral metastases. They also state that the presence of local intravascular tumor invasion frequently means visceral metastases. Even if only a few years can be added to the span of life of the supporter of a family, the undertaking should be well worthwhile.

CECOSTOMY

Cecostomy is frequently a life saving procedure in the presence of an acute obstruction of the large bowel. Such obstruction is often the result of malignant disease, or at least malignant disease in many cases cannot be excluded as a cause. By cecostomy the distended large bowel can be gradually deflated and the patient's general condition greatly improved. It has the advantage of giving almost immediate relief and if properly done is nearly devoid of danger. If the appendix is of reasonable size, a rubber catheter or drainage tube can be carried through the lumen of the appendix and into the cecum, or the drainage tube may be purse-stringed into the cecum after the fashion of a Witzel gastrostomy. Previously the cecum can be fixed to the parietal peritoneum and so protected by omentum that there will be but very slight danger of peritonitis. The drainage tube can be kept open by irrigation at intervals. After this the tube, the use of which is of course a temporary measure, can be discontinued, following which the sinus may close spontaneously, or it may be necessary to do a plastic closure.

COLOSTOMY

Colostomy is one of the most essential and important steps in the whole matter of the surgical treatment of large bowel pathology. Three important results are to be expected in many cases: First, to relieve obstruction; second, to put the bowel below that point at rest; third, and in some cases at least, to enable the surgeon to cleanse the diseased segment and to get rid of most of the infective organisms present so that aseptic surgical procedures can be carried out with a view to the patient's future welfare. In order to attain the above ends to the fullest extent, it will be necessary not only that the large bowel be completely divided in its continuity and if it is desirable to put the segment below at rest, to not only bring the divided ends of the bowel out through the same incision but to suture a strip of skin with underlying fat between them, (Devine). It will be necessary also that the drainage openings be kept small, otherwise there will be a spill over from the discharging end of the upper loop into the lower one. In case urgent obstruction is present, a small catheter can be sutured in the upper limb of the bowel just above the clamp which secures the bowel end and through this tube irrigation and relief from obstruction can be carried out. In case the tumor can be resected at the time of the primary operation and the conditions are favorable the two ends are brought along side each other after the fashion of Mickulicz so that at the proper time clamps can be applied to the spur be-

tween the bowel ends in order that the fecal stream can continue on its normal course.

Again in other cases it may be necessary to make a permanent colostomy along with a one stage or two stage resection of the involved rectum or rectosigmoid, or the case may be quite inoperable and the colostomy is only done to prolong life and to prevent or relieve obstruction. The character of the operation to be done often has to be determined at the time of operation and after abdominal exploration has been done. While at first thought it would seem that an artificial anus in the abdominal wall would be a very great inconvenience, much can be done by careful regulation of the diet and proper care of the colostomy opening so that one bowel movement per day, or every other day and a bowel toilet at the same time are all that is necessary in the care of the average case.

END TO END ANASTOMOSIS

In a few cases, more especially in the case of women patients where the pelvis is roomy and the bowel easily mobilized, the rectal sphincter and levators can be preserved and a portion of the sigmoid be brought down through them or to a stump of the rectum and an end to end anastomosis be made above so that the patient's natural bowel functions can to a considerable extent be restored in some cases.

Insofar as carcinoma of the rectosigmoid area is concerned, the general surgical trend at the present time favors in many cases a rather radical one stage resection as being less hazardous from the standpoint of operative danger and of lessened liability to recur.

The cases of cancer of the large bowel seen by me have in the majority been in poor condition for surgery. A good many of them were hopelessly inoperable so that altogether the mortality in this class of patients will run rather high.

Benign lesions may simulate cancer. I have had two cases of inflammatory intussusception of the appendix and terminal ileum into the cecum. In both, the cecum and a portion of the terminal ileum were resected with satisfactory results. The following case reports illustrate some of the diagnostic problems:

CASE REPORTS

Case 1: M. B., a recent case sent to me by his family physician. A tumor mass was felt in the region of the cecum. No one knew exactly how long it had been there. It was thought possibly that this was a malignant growth. Röentgen examination indicated a soft tissue tumor pushing in the head of the cecum very markedly, but in the opinion of Dr. V. L. Peterson, röentgenologist, this was not a malignant growth. Abdominal exploration disclosed the presence of an appendix buried in firm fibrous tissue and densely adherent to the cecal wall. The appendix was dissected free and removed after which it was found that the cecal wall about that point was at least three-quarters inch in thickness due to long standing chronic inflammatory changes. Final diagnosis in this case was subacute appendicitis, periappendicitis, typhlitis and paratyphlitis. This patient had a normal convalescence.

Case 2: P. G., white male, age 60 years, was readmitted on October 10, 1937, with the following history: About midnight, October ninth, he began to have colicky, griping pains in the abdomen. He had had no bowel movement since the previous morning and was having colicky cramping. Enema was ineffective. The cramping continued. Röentgenogram revealed obstruction of the large bowel just below the hepatic flexure. Likewise a barium enema was given which confirmed the obstruction. On operation a firm, hard mass in the region of the hepatic flexure of the ascending colon was found. The cecum and the terminal ileum were markedly distended. It was thought that the mass in question was probably inflammatory in character. The terminal ileum was anastomosed laterally with the transverse colon. The transverse colon was so firmly adherent as a result of a previous cholecystectomy that the anastomosis was carried out with considerable difficulty. It was felt that the obstruction was due to inflammatory reaction. The patient had a stormy postoperative course but at the time of discharge he apparently was in good condition. At that time a röentgenogram showed continuance of the obstruction but the enterostomy was working effectively. Röentgenogram made at a later date showed that both the transverse colon and the ileocolostomy were functioning satisfactorily. The tumor mass had apparently disappeared.

Case 3: Mrs. T., white female, age 50, came to see me complaining of gradually increasing constipation associated with moderate distention associated with pain in the lower left abdomen. Findings at operation: Distention of colon more marked in ascending and transverse areas. Annular tumor just above the rectosigmoid junction. A colostomy of the transverse colon was made and later the rectosigmoid tumor apparently malignant in nature was resected, followed by an end to end anastomosis. A large rubber drainage tube was sutured into the rectum in order to eliminate gas pressure. This patient made a satisfactory recovery and died a year or two later apparently from some intercurrent infection.

Case 4: Mrs. C., I saw this patient in consultation several years ago. A white female, age 65, quite large and obese. She had an artificial anus in the sigmoid area which seemed to be in very good condition. This had been made by a prominent surgeon elsewhere, approximately eighteen years previously. Both rectal and vaginal palpation revealed a large, very hard tumor, which seemed to fill a good deal of the pelvis. At the time of operation, a diagnosis of cancer of the rectal wall had been made. This case was obviously an unusually slow growing type of low grade malignancy.

Case 5: Mrs. W., seen by me eight years ago, complaining of gradually increasing constipation. A palpable mass was noted in the sigmoid area. Exploratory operation was advised. There was present a very definite movable mass which apparently involved most of the lumen of the colon at one point, approximately about the center of her rather large and freely mobile sigmoid. It was noted that the sigmoid colon could easily be by-passed around the tumor which had all of the clinical appearance of a carcinoma. A side to side colocolostomy was done. This patient had an entirely normal convalescence. The obstructive symptoms completely disappeared. She was discharged from the hospital and requested to return in six weeks for resection of the tumor but did not do so. I lost trace of her entirely until about three months ago when her daughter came to see me and to my very great surprise told me that her mother was not only living but was up and about and had fair health. She did have a lump of considerable size in her side, however. This case was evidently one of the very slow growing type, occasionally seen. Her physician reports to me that she leads a very active life on a farm and apparently enjoys fair health.

Case 6: C. W., a white male, age 40, was admitted October 6, 1928, complaining of diarrhea, weight loss and generalized weakness. The sphincter ani was relaxed and a mucous discharge was present. A pulpy marginal elevated mass was felt in the rectum high up. Biopsy from the tumor was taken and the pathological diagnosis was carcinoma of the rectum. On October tenth, a preliminary operation was done, bringing the sigmoid out through the left rectus incision with peritoneum sutured under the loop and around the sigmoid. Also, the anterior fascia was sutured under the loop of the sigmoid and the skin edges turned down into the wound. Two weeks later a perineal resection of the rectum was undertaken. There was a hard annular growth present about three inches above the anal opening. This along with considerable normal rectal tissue both above and below the lesion was removed. His convalescence was normal and he was discharged on November 16, 1929. He returned to his occupation of mine superintendent and was able to carry on at his occupation until his death which took place about two years ago. He was readmitted July 9, 1934, complaining of protrusion of bowel through the colostomy opening. X-ray examination revealed no evidence of metastasis. Examination showed that the protruding bowel was the upper limb of the sigmoid leading to the colostomy. We removed a segment of the herniated bowel by clamping with large Kelly clamps, left in place for 48 hours, then removing the clamps and cutting away the gangrenous tissue. He returned August 16, 1934, and a small tab of herniated bowel still remaining was removed. He died a year or two ago, after a short illness. No postmortem was done and I do not know the cause of death.

Case 7: Mrs. E., white female, age 58, came to me with a history of profuse pinkish rectal discharges at intervals for more than a year. X-ray and proctoscopic examinations indicated early rectal malignancy. Operation: Left rectus incision. The rectum and the lower sigmoid were firmly plastered down by nearly continuous adhesions. The upper sigmoid was divided and an artificial anus was made in the left side. The remaining rectosigmoid was removed by a combined abdominoperineal operation. The patient had a normal convalescence and

the operative wound healed with a slight infection. Pathological report by Dr. Walter Putschar: "Generalized rectosigmoid polyposis."

Case 8: A colored male, had a palpable movable tumor a short distance above the umbilicus. Operation: Right rectus incision. Findings: Irregular-shaped mass involving the anterior wall of the transverse colon. This was resected between clamps and an end to end closure was done. Normal convalescence. Pathological diagnosis: "Adenocarcinoma." Patient was doing well several months after operation, the operating surgeon in this case was Dr. J. B. Banks. I have been unable to trace this case, so do not know what the final outcome was.

Case 9: Mrs. G., white female, age 56, has had a history of rectal irritation together with a progressive type of constipation, extending over a period of several months. Rectal palpation disclosed a definite mass involving mainly the posterior rectal wall and causing a stricture. This was diagnosed as carcinoma. A preliminary sigmoid colostomy was done and six weeks later a perineal resection of the rectum was carried out. This patient underwent operation about four years ago and states that her condition continues to be satisfactory. In the beginning she had some trouble from too frequent bowel movements, but by regulating the diet and carefully washing out the colon once a day, she is in good condition most of the time.

Case 10: O. W., white female, age 40 years, admitted to the hospital on July 7, 1937, having well marked symptoms of lymphogranuloma inguinale involving the rectum and perirectal tissues. She gave a history of a possible exposure to this infection several years previously and stated that she had gradually increasing difficulty in moving the bowels. Examination showed a tense stricture of the rectum that could be dilated but would contract again within a few days. The patient was suffering almost constant pain and had a number of discharging sinuses in the perineum. She was positive to the Frei test. She had previously been to a western clinic where a diagnosis of lymphogranuloma inguinale had been made. She had been advised to have a transverse colostomy in order to put the bowel at rest. Owing to the patient's anemic condition, several blood transfusions were given her before operation which was done by me in August, 1937. At this time, it was noted on intra-abdominal exploration that the upper intraperitoneal portion of the rectum, also the lower portion of the sigmoid were so densely infiltrated as to be totally unlike normal bowel tissue. The relief was immediate and very marked. The patient was given an intensive course of Fuadin. The sinuses have healed and the infiltrated perianal area has softened and smoothed out. To date, she has been comfortable, has shown gain in weight and has been able to resume her former occupation.

Case 11: L., white male, tall, broad shouldered, about 50 years of age, came to see me in September, 1937. He said that about three years prior to that time he noticed a little blood in his stools on several occasions, that somewhat more than two years later he began to have a gradual loss of weight and that within the last twelve months he had fallen off in weight from 185 to 154 pounds. He still felt fairly well and kept actively at work. He said that a month previous to his visit to me he noticed that his urine had an offensive odor and showed blood specks at times.

Abdominal palpation revealed a good sized fixed mass in the left lower abdomen. I advised early abdominal exploration but felt in my own mind that the case was probably hopeless from the standpoint of cure; however, that it was possibly still operable and that exploration was justifiable. He said that he would probably have something done soon, but did not. A few days ago he came to the hospital looking quite a shadow of his former self. Pale, wasted with swollen ankles that pitted deeply on pressure. Blood examination showed the hemoglobin to be down to 32 per cent. He was given several blood transfusions but we were unable to increase his hemoglobin, so that at no time after he was admitted to the hospital was his condition such that any sort of operative treatment could have been considered at all.

Twenty-four hours before his death he complained of sudden severe pain in the abdomen and went into a state of shock. His abdomen did not become rigid but the condition of shock gradually increased until terminated by death.

POSTMORTEM

Examination in this case revealed a general peritonitis apparently due to the fact that a large purulent collection in the region of the sigmoid had ruptured intraperitoneally. There was a good sized tumor mass involving the sigmoid for about three and one-half inches in length and taking in most

of its circumference, the posterior wall not being extensively involved. There was no evidence of metastasis either in the lymphatic glands or in the liver. On the other hand the tumor had become adherent to the ileum rather high up and had formed a spontaneous ileocolostomy so that the contents of both the large and small bowel were being continually mixed. This naturally brought about such a serious interference with the body nutrition that his steady loss of weight and lowered hemoglobin were accounted for. Another large sinus had allowed the bowel contents to drain into the urinary bladder for many months past. He had been taking urinary antiseptics and having bladder irrigations for some time without avail.

The above is the history of a useful and intelligent member of the community who had known and realized his condition for a long time but had failed to have anything done about it. This was the type of case which because of the absence of metastases could in all probability have been cured by timely operation.

Case 12: C. C., white male, age 58 years, admitted complaining of a mass in the left side of the abdomen noticed three months previously. No complaints except constipation for past ten years. Examination revealed a large nodular, hard mass in the left lower quadrant which seemed to be fairly movable. It appeared to be a part of the large bowel. Röentgenogram of the colon showed a deformity that looked like malignancy producing marked obstruction of the lower portion of the descending colon. On operation a large tumor involving the lower portion of the descending colon and upper part of the sigmoid was found. A resection of the tumor, Mikulicz technique, was done; the DeMartel clamp being used. The pathological diagnosis in this case was polypoid mucoid adenocarcinoma of colon, secondarily infected and multiple abscesses in pericolic fat tissue. He returned on November 9, 1937, for the second stage Mikulicz. The septum between the bowel ends was divided in the usual manner by clamping. He again returned January nineteenth, at which time the closure of the colostomy was performed.

Case 13: C. McM., white male, age 62 years, was admitted complaining of gas pains for some time and the week prior to admission passage of blood by bowel, also pain on defecation. X-ray examination by Dr. V. L. Peterson revealed a napkin ring type of carcinoma involving the colon at the juncture of descending and the sigmoid areas. There was a beginning obstruction. Three days later surgical mobilization of the tumor mass by division of adhesion bands was done. Resection of the tumor area was done together with a segment of apparently normal bowel about one and one-half inches long on either side. The two limbs of bowel were held in a Rankin clamp. These two limbs were loosely sutured to each other through the tabs of fat and appendices epiploicae. The tumor was amputated with the electrocautery. The parietal peritoneum was snugly closed about the projecting bowel ends. Pathological diagnosis was ulcerated adenocarcinoma of colon with marked stenosis and beginning invasion of the pericolic fat tissue. After a rather stormy course he was discharged from the hospital in good condition. He was readmitted six weeks later at which time the very small opening in the colon was closed extraperitoneally. Following this operation his convalescence was quite satisfactory. There was very slight drainage from a low grade infection of the wound but this rapidly subsided and healed in two weeks.

Case 14: W. B., a case of malignancy of the cecum was referred to me by his physician. The patient was having some abdominal distention and associated vomiting and other symptoms suggestive of appendicitis. However, there was a palpable mass in the region of the cecum. X-ray examination by Dr. V. L. Peterson indicated the presence of malignant disease. This patient's abdomen was opened, and a good sized infiltrating tumor mass involving the cecum was noted. This was evidently causing obstructive symptoms. A lateral anastomosis between the terminal ileum and transverse colon gave him much relief. He was strongly advised to have the cecum resected at a subsequent operation. He postponed the evil day and got along fairly well for nearly a year, finally dying from a generalized carcinomatosis in the right side of the abdomen.

Case 15: J. R., white male of 39 years, was admitted complaining of pain in the rectum. He stated that the pain began with the present illness seven weeks previously although he had had bleeding from the rectum and diarrhea previous to that and that he was treated for a time for mucous colitis. He was later in a government hospital where he was told that he had cancer of the rectum.

He stated that the pain was intense in the region of the anus and in the groin. He had had two rectal hemorrhages and profuse diarrhea prior to admission to the hospital. This patient underwent an operation and it was found that the pelvis was practically filled with an enormous mass which surrounded the rectum in a large part. The abdomen was apparently otherwise negative. No metastases were noted. The sigmoid was divided between clamps with the electrocautery for the formation of an artificial anus. The skin edges were sutured to the fascia adjacent to the bowel. Five weeks later the patient was allowed to go home. It was felt that owing to the enormous size and fixation of the growth that resection was entirely out of the question. We have been unable to trace this patient.

Case 16: F. R., white male, age 73, was admitted complaining of blood in the feces and constipation. This patient had been examined the previous year at which time a diagnosis of carcinoma of the rectosigmoid was made and operation had been refused. Examination revealed moderate distention of the abdomen and slight tenderness in the left lower quadrant where there was a vaguely palpable mass. He was diagnosed as having a carcinoma of the rectosigmoid junction producing complete obstruction of the large bowel. It was thought best to do a cecostomy because of the patient's general condition. This was done and his general condition gradually improved, and the impacted feces were slowly expelled. During the month of August, a resection of the rectum was carried out in two stages in accordance with Lahey technique. Pathological diagnosis was adenocarcinoma, grade three, of the rectosigmoid. His course was satisfactory until six days after operation when he suddenly developed marked respiratory embarrassment and died. We felt sure that his death was due to pulmonary embolism.

Case 17: H. S., white male, age 67, was admitted complaining of gaseous distention, pain on defecation and blood in the stools for past few weeks. These symptoms had been growing progressively worse recently. There was a previous history of chronic rectal irritation for several months. Examination revealed a linear mass in the region of the sigmoid. A first stage operation on the sigmoid colon was performed and a diagnosis of cancer of the rectum, moderately advanced, was made. The colon was divided and an artificial anus was established. We had planned to resect the rectum at a later date by the abdominoperineal route. His postoperative course was uneventful until ten days following operation when he complained of severe pain in the left chest (heart area), and expired. Postmortem examination was not permitted but it was felt that the immediate cause of death was an attack of coronary thrombosis.

I have had one case of a leather bottle type of cecum corresponding to the so-called leather bottle stomach, observed in a 40 year old white male, who had been complaining of pain and various disturbances in the right side of the abdomen. In this case the cecum was resected together with most of the ascending colon. This was done as a one stage operation, the ileum being anastomosed to the transverse colon. There was moderate wound infection but the case turned out very well, was followed up for a year or more and when heard from last was in good condition.

SUMMARY

The most important single factor in regard to large bowel surgery is early diagnosis. After this comes prompt and efficient action. Cancer must be differentiated from polyposis and diverticulitis.

The identity of lymphogranuloma inguinale is established by the history plus the aid given by the Frei test made repeatedly and with different antigens.

The surgeon should be able to make proper use of the various defunctioning methods in order to be able to do large bowel repair in an aseptic manner when the occasion demands that method.

We have dealt with thirty-five cases of cancer of the large bowel during the past few years. Many of these were too far advanced for any hope of cure. Several were in practically a moribund condition. A rather small percentage were really operable and the results in a few of our cases have been very gratifying. If all could have been operated on early there would have been reasonable hope for a goodly percentage of cures.

Cecostomy or colostomy for the relief of acute diverticulitis should be done at some distance from the inflamed bowel.

THE USE OF CONTINUOUS SUCTION IN SURGICAL TREATMENT*

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THE use of continuous suction in surgical treatment may be considered first in preoperative conditions and, second in postoperative conditions.

In preoperative conditions, continuous suction should be used with the greatest of caution, particularly in those cases where a definite diagnosis has not been made, for although it will lessen the distention of the abdomen and improve the breathing of the patient, yet it will mask the true pathology of the abdomen. Recently it has been shown that in instances of obstructions from strangulation and even in simple obstructions due to adhesions, the use of continuous suction was of no benefit and a direct surgical attack was necessary. Furthermore, its immediate use will increase the dehydration of the patient.

Continuous suction has found its greatest use in postoperative conditions, particularly in those operations for gastric and intestinal resections and peritonitis. Since its introduction by Wangensteen and Paine, it has done much to reduce the surgical mortality in these types of cases. Recently Johnson and Abbott have introduced their tube which permits evacuation of intestinal contents down to the level of the obstruction and thereby has reduced the incidence of jejunostomies, ileostomies and colostomies. The most important function of continuous suction is the relief of distention, thus causing an increase of arterial blood flow to the affected intestine and preventing necrosis of the bowel.

In cases where there have been preoperative periods of vomiting and in cases where it is necessary to leave the tube in place for five days or more, one must consider the loss of body fluids, blood chlorides and body proteins. A large percentage of cases of intestinal obstruction are dehydrated when admitted to a hospital. The introduction of a duodenal tube with continuous suction will further dehydrate the cases unless sufficient fluids and transfusions are given. Too often we see the use of continuous suction accompanied by no definite blood study. Saline fluids and blood transfusions are given without any adequate check of whether these treatments are necessary. The use of continuous suction will increase the loss of body fluids and chlorides just the same as continuous vomiting and if these are not supplied, there occurs a diminished blood volume and the patient becomes susceptible to shock. With restriction of proteins, a starvation edema will develop which will retard the healing of the wound. According to Ravdin,[2] the edema may retard the gastric emptying time and these patients are more susceptible to postoperative pulmonary complications.

On the other hand, the excessive use of sodium chloride solution will accentuate or cause edema. Without adequate blood studies, starvation edema cannot be differentiated from that of excessive intake of sodium chloride solution. Helwig[3] reported a death following a cholecystectomy caused by water intoxication from absorption of nine liters of tap water by proctoclysis within a period of thirty hours. At the autopsy there was defi-

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nite widening of the perineural and perivascular spaces and the intercellular stroma was definitely vaculolated throughout.

Therefore, let us consider first, the chloride and fluid requirements and second, the protein requirements of the body. Haden and Orr[4] showed that during experimental high intestinal obstruction in animals there occurs a fall in blood chloride values and a rise in blood urea and non-protein nitrogen. Although this may take place without vomiting, as a rule, the more severe the vomiting, the greater will be the hypochloraemia. With experimental pyloric obstructions large amounts of water, base and chlorides may be secreted into the stomach, accompanied with a decreased excretion of the chloride in the urine. As early as 1912 Hartwell and Hoguet[5] revealed that the survival period in the obstructed dog was doubled by subcutaneous salt injection.

Falconer and Lyall[6] have reported a series of cases which showed a hypochloraemia either before or after operation for partial intestinal obstruction. They proved that with improvement of the plasma chloride level, there was a return to normal, although not completely, of the CO^2 combining power and the blood urea. As a rule, from determination of the CO^2 combining power of the plasma, it was found that in hypochloraemia there was a tendency toward alkalosis and that when the plasma chloride was normal, there was a normal acid base equilibrium. This suggests that the type of change in the acid base equilibrium was affected by the loss of the chlorides from the body in vomiting.

COLLIER'S FORMULA

Collier[7] and his associates have given a formula based on body weight and the blood chloride determinations as to the dosage of saline to be given and have found that for each 100 milligrams per cent that the plasma chloride need be raised to reach a normal of 560, the patient should be given five-tenths of a gram of sodium chloride per kilogram of body weight.

Sullivan[8] found that he could remove daily from the stomach by the Wangensteen apparatus from one to four liters of fluid and, along with this, fourteen grams of chlorides. The amount of chlorides removed had no relationship to the acidity of the stomach. The administration of large quantities of fluid orally producing a lavage action in the stomach was the principal factor in causing the increased gastric secretion. He noted that on the first day postoperatively about six grams of chlorides were removed by the suction apparatus and this rapidly declined to one gram coincident with the opening of the pyloria or operative stoma. He concluded that with obstruction at the pylorus alkalosis may develop as early as five days if parenteral saline solution is not administered.

USE OF SALINE SOLUTION

Paine and Armstrong,[9] in a study of the fluid and sodium chloride balance in nineteen patients treated with continuous suction applied to indwelling duodenal tubes on the surgical service of the University of Minnesota Hospital, observed that the administration of 2000 c.c. of normal saline solution daily will maintain a positive chloride balance. Four to five days must elapse before dechlorination, incident to the aspiration of the gastric and duodenal secretions, can do harm to a patient supplied inadequately with sodium chloride. The number of grams of sodium chloride aspirated varied from less than a gram to as much as twenty-five grams in twenty-four hours.

R. A. McCance[10] found that in experimental sodium chloride deficiency in man there was a rise in the blood urea, a reduction of blood volume, a rise of hemoglobin, protein and colloidal osmotic pressure of the serum.

In giving saline solution for the restoration of body chlorides, it is important that the solution be isotonic or hypotonic because the salt loss from the body together with water is always in concentrations less than that of physiological saline solution. Hypertonic solutions have a disadvantage of farther de-

hydrating a patient or aggravating the nutritional edema or producing a diarrhea.

According to Collier, Dick and Maddock,[11] the basal fluid requirement is about 3500 c.c. Here again, the question of edema is considered. They found that twelve of the thirteen surgical patients receiving five per cent dextrose in physiological saline solution or Ringer's solution retained water and gained weight. The amount of water held was less with Ringer's solution. When administration of the salt solution was stopped and fluids were taken by mouth or changed to five per cent dextrose in distilled water intravenously, all the group promptly lost the water previously retained. It was unnecessary to stop the administration of intravenous fluid or to use diuretics to get rid of the water retention.

The third factor or the loss of body proteins with prolonged intubation of the duodenum will be briefly considered. One of the first evidences that muscle or other non-vital protein stores become inadequate during protein starvation was the observation of hypoproteinemia which often results in nutritional edema. The association of a high blood urea with a high urea excretion indicates that in intestinal obstruction there must be an increase in the endogenous protein metabolism.

DEGREE OF EDEMA

Jones and Eaton,[12] in a review of twenty-six patients who showed clinical edema, concluded that, with few exceptions, the degree of edema varied inversely with the serum protein content. The level of the non-protein nitrogen bore no relation to the presence of edema. The specific gravity of the urine was high in nearly all the cases at or near the time that edema was noted. The average amount of serum protein noted at the time of the development of edema was 5.2 grams per 100 c.c.

Curphey and Orr[13] state that surgical edema is most likely to develop in one subject to starvation association with an infection such as peritonitis and its appearance particularly after a prolonged illness suggests an unfavorable outcome. A transfusion of 500 c.c. of blood has little effect on the protein content of the blood serum. However, repeated transfusions will effect a gradual rise of the serum protein.

Lately Elman and Weiner[14] have reported the giving intravenously a mixture of amino acids with favorable results in cases of intestinal obstruction with depletion of body protein. Also, Rhoads, Strengel, Riegal and Frazier, as reported by Ravdin, have shown the correction or prevention of hypoproteinemia in cases of intestinal or gastric resections by means of a double lumen tube, one of which extending beyond the operative field through which protein foods could be introduced and the other extending to the stomach for suction.

LABORATORY PROCEDURES

Adequate preparation and treatment in cases of intestinal obstruction, peritonitis, appendicitis, and the like as regards their fluid and protein balance can be determined quickly in cases just committed to the hospital by two simple laboratory procedures. First, by the hematocrit method, the cell volume in venous blood can be determined. If the hematocrit reading is below 35 per cent cells, a transfusion is indicated but if above 50 per cent cells, fluids are necessary. The hematocrit reading must always be interpreted in relation to the protein level. The second laboratory procedure is the determination of the protein level of the blood which can be quickly found by taking the plasma specific gravity. One may suspect hemoconcentration when the plasma proteins are above 7.0 grams per cent, but edema may appear when the plasma proteins are at or below 5.5 grams per cent. Both of these procedures can be easily done within one hour after admission of the patient to the hospital and by means of them the dosage of fluid or blood can be accurately estimated.

In conclusion, the most common use of suction is in postoperative conditions, particularly in peritonitis and following stomach or intestinal resections. Continuous suction relieves distention of the intestine, thereby im-

proving the blood supply to the intestines, and prevents, in many cases, an enterostomy or a colostomy. Continuous suction without adequate fluids or proteins will tend farther to dehydrate a patient and, over a prolonged period of time, a starvation edema may develop. Therefore, in its use, the blood chlorides, blood proteins and blood concentration should be frequently determined.

DISCUSSION

Dr. R. H. Walker, Charleston: Dr. Wright has discussed a very interesting and timely subject in a brief but thorough manner. His employment of the use of continuous suction in surgical treatment will serve to cause us to consider carefully the indications and the contraindications for its use.

I wish to emphasize some of the ideas which he has so well stated. It is not a foolproof procedure to be employed at random or in an indifferent attitude on the part of the surgeon and his assistants. It requires preoperatively a careful selection and evaluation of your patients. It is not to be used in strangulated types of obstruction, as it tends to mask the pathology, similar to a hypodermic of morphine in an acute abdomen. It is not to be used in obstruction of the large bowel because of the time element, it is too slow in giving relief to the patient.

Its indifferent use may actually cause a dehydration and death from starvation due to the loss of essential body fluids which by its use are taken from the gastrointestinal tract. These essential body fluids naturally have to be preserved and replaced by the use of sodium chloride, glucose and blood transfusion. These procedures have to be checked carefully by a record of the intake and output of the body fluids and the blood chemistry, which has been thoroughly discussed by Dr. Wright, as well as careful urinalysis.

Ulcers of the nasopharynx and esophagus have been observed in the use of the Wangensteen tube, due to lack of care and attention and poor technique in the passage of the tube.

Paralytic ileus is a grave complication which may follow a most simple surgical procedure of the abdomen. It is the only known method in which the entire length of bowel can be decompressed. The Johnson and Abbott tube with continuous suction and the careful preservation of the essential body fluids by transfusion, the use of saline and glucose, offers our patient the greatest opportunity for recovery.

In mechanical obstruction of the small intestine due to adhesions it is often of benefit, in that it relieves the distention above the site of obstruction, preserves the circulation of the intestine and the tone of the muscle, and frequently permits restoration of the lumen of the bowel for passage of its contents, thus making an interval operation possible. It carries the patient past the period when the operation is most dangerous. Of course that is not always true, but it is in most cases. Its use has made the emergency operation for relief of intestinal obstruction, which was so prevalent a decade ago, unnecessary, except in strangulation types and obstructions of the large bowel.

Its use in postoperative adhesions has been well stated by Dr. Wright. It relieves the tension on sutures and removes the toxic fluids from the intestines and also gives the surgeon some idea of whether or not there is any possible intestinal hemorrhage. However, postoperatively it must be used with the same degree of caution as in preoperative conditions.

Dr. Ben Golden, Elkins: In 1917 Dr. Crile came back from Europe and emphasized the fact that many wounded soldiers were being killed by injudicious use of saline; they were being drowned. Prior to the development and effective work of Weech, Lang, Ravdin and others with the densiometer, we could go on the assumption that we were merely overloading the tissues with water. We did not recognize the interrelation between blood plasma protein and the electrolyte equilibrium in the body. Today, with this simple laboratory procedure, the surgeon has at least received a means of scientific calibration of his patient for preoperative and postoperative observation and when to operate. Our peritonitis cases that we are taking to the operating room moribund may not be so moribund if we will balance them off and spend a few hours in preparation so they can stand the operation, instead of taking them down and pouring into them glucose and saline or glucose and water, whichever is best stocked up in the hospital and the easiest to obtain.

The free use of blood transfusion will not be so necessary with a better evaluation of the patient. Some of the patients that are dying of so-called technical faults in posterior gastroenterostomy are dying in truth of intravenous solutions and edema of the stoma.

The essayist has brought out something today which is in the process of evolution but it is not beyond any of us, and those of us who are professing to do scientific surgery are certainly negligent in our treatment of and attitude toward the patient unless we take the present methods given to us in biochemistry to evaluate that patient and give him better care.

Dr. Chauncey B. Wright, Huntington: The determination of blood volume and blood proteins can be very quickly done. The blood proteins can certainly be determined, just as Dr. Harris has demonstrated. For hematocrit determination, instead of centrifuging for one hour I think we can get a rough estimate in fifteen minutes.

I have been using it recently in two cases of ruptured appendix, one of which died, the other living. One had been ruptured for 24 hours, the other for possibly eight hours. Both ruptured after a dose of salts and castor oil. In one case particularly there was considerable shock, and there again these two determinations are of help. Instead of rushing the patient to the operating room, we can take five or six hours until we get the blood proteins and blood volume up to normal and save some of these patients.

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Editor's Note: Discussion of Dr. Wright's paper by H. H. Haynes, Clarksburg, was published as a separate case report in the October issue of the JOURNAL, pages 459-460.

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A. M. A. ON UNNECESSARY SURGERY

"Much of the propaganda devoted to breaking down public confidence in the American medical profession in recent years has been devoted to an attack on the medical profession because of fee splitting and because of the performance of unnecessary surgical operations," an editorial on "Unnecessary Surgery" in *The Journal of the American Medical Association* says.

"Obviously, this kind of propaganda is never supported by actual facts or figures but is largely devoted to what has come to be called 'a smearing campaign.' In contrast is a report recently made available of surgery performed in a Brooklyn hospital. According to figures supplied by Dr. S. S. Goldwater, major surgical operations were performed in that hospital on 979 patients, exclusive of bones and joints, and fractures and other lesions of bones and joints were treated to the number of 788. At the same time in this institution sixty-eight patients with possible surgical conditions were treated conservatively without operation, and 117 patients who came into the hospital with surgical diagnoses were not operated on because further study failed to confirm the diagnosis.

"*The Journal* ventures to say that this type of figures would be duplicated in the vast majority of hospitals in this country and particularly in those hospitals in this country."

TRAUMATIC RUPTURE OF THE SPLEEN*

By THOMAS L. HARRIS, M. D.
Parkersburg, West Virginia

RUPTURE of the spleen by traumatism is a more frequent accident to an intra-abdominal viscus than is generally realized. The immediate causative factor in producing any injury to the spleen is direct violence to the left anterior abdominal or lower thoracic wall; whether this be by blow, fall or crush, the severity of the injury is not in direct proportion to the splenic damage, one of our cases being a boy six years old who was struck by a baseball thrown by a boy at a distance of twelve feet.

According to Mazel the spleen is injured in 30 per cent of all abdominal injuries. On first thought one would think this to be a high percentage. From 1920 to 1938 the author has performed twenty-nine laparotomies for direct abdominal injuries, of which thirteen revealed ruptured spleens, four ruptured livers, four ruptured kidneys, four ruptured ileum, four no viscus injured. In this series of cases 45 per cent were splenic injuries. Robitshek, quoting Berger on frequency of splenic rupture in abdominal injuries, "spleen 20 per cent, kidney 22 per cent, liver thirty-seven and one-half per cent."

The first splenectomy was done by Zaccarrelli in 1549 for malarial spleen in a woman 34 years old and the patient recovered. (Quoted from Connors.) The first successful case of traumatic rupture was done by Riegues in Breslau in 1892.

We are certainly confronted with the fact that the spleen, though not an anatomically vulnerable organ, is one frequently injured.

A careful search of the literature does not give any data on the postmortem findings as to the cases of undiagnosed rupture. In our experience we have had four postmortem findings of rupture of the spleen undiagnosed.

*Read before the Section on Surgery of the West Virginia State Medical Association, White Sulphur Springs, July 12, 1939.

THE AUTHOR

Dr. Thomas L. Harris, St. Joseph's Hospital, Parkersburg; graduated Jefferson College; interned Pennsylvania Hospital and Children's Hospital, Philadelphia; postgraduate work, Edinburgh and Dublin; Surgeon; President of West Virginia Industrial Surgeons 1938-1939.

The youngest case on record of traumatic rupture of the spleen was a "new born" dropped on the floor, (Simpson); the oldest 57, resulting from a kick by a horse, (Madlener). The greatest splenic danger would seem to be between the ages of 10 to 20, and more frequent in boys than girls due to the recklessness of children at that age. In my series of thirteen cases, the age ranged from six to thirty-nine years, nine occurring between six to seventeen years, two between nineteen to twenty-three, and two between twenty-seven to thirty-nine.

In a series of 128 cases reported by Robitshek to which the author adds thirteen, the age range was as follows:

Age	Number of Cases
1 to 10	24
11 to 20	45
21 to 30	31
31 to 40	17
41 to 50	8
51 to 60	4
Not recorded	12
Total	141

Age	Cause of Injury	Time of Operation After Accident
6	Struck by baseball	4 hours
10	Struck by automobile	3 hours
11-11-11½	Fall from tree	7 hours
12	Fall from barn loft	8 hours
14	Struck in side by pole on wagon	6 hours
15	Struck by plow handle	9 hours
17	Fell while painting house	4 hours
19	Automobile accident	3 hours
23	Struck in left side by crank when starting engine	8 hours
27	Struck in side by pole on a hand truck in factory	3 hours
39	Stab wound of left side	2 hours

TYPES OF RUPTURE

(1) Primary or Immediate: Is that type of rupture which occurs at the time of the accident and is characterized by a large tear through the capsule and deep into the splenic pulp producing massive intra-abdominal hemorrhage. Spontaneous control is unlikely.

(2) Secondary or Intracapsular Rupture: This type of rupture occurs a number of days after an accident in which the splenic pulp has been torn but the capsule is intact. The interval of time varies from several days to thirty-eight days. Jackson reports a delayed rupture of four weeks occurring in a fifteen year old girl and one case five days after accident. In this type of case the trauma has been intrasplenic or subcapsular; the hemorrhage has taken place within the splenic capsule and has been slow but progressive until the spleen becomes a large aneurysmal sac. Also small capsular injuries may occur in which clot formation is more intensive and the omentum and adjacent organs add a bolstering effect although the slow oozing continues. Finally, by either too great intracapsular pressure or by some compressant effect of the abdominal muscles, the large aneurysmal sac ruptures and intra-abdominal calamity occurs. It is at the time of this sort of calamity that the surgeon may make a fatal error feeling he has a circulatory disturbance, such as coronary thrombosis.

I have seen this error made in a fracture of the leg where a previously ruptured spleen had not been diagnosed, and when it ruptured five days later the patient presented a rather typical picture of coronary accident.

DIAGNOSIS

The diagnosis of traumatism of the spleen is based first on the type of injury received, and the location of the maximum extent of violence in relation to the abdominal wall and intra-abdominal organs. Of necessity it must be differential in character, and injuries to all intra-abdominal organs must be considered. It is obvious that the first consideration is whether an intra-abdominal viscus has been injured to such an extent that operation is to be considered.

We immediately find ourselves confronted with the differential diagnosis between hemorrhage and shock. Numerous writers have shown that, in the early stages of hemorrhage and shock there may be but little change in the blood pressure and blood count. This is due to the protective forces of the body, and it is when these forces are spent that symptoms and signs appear which make diagnosis possible.

SPECIFIC GRAVITY OF PERIPHERAL BLOOD

In 1938 Dr. Bailey at the Southern Surgical Meeting called attention to the value of the specific gravity of peripheral blood in differentiating between shock and hemorrhage. Quoting Bailey, "Under our older system of relying upon frequent blood counts and hemoglobin estimations, we are able to distinguish with accuracy, no more sensitive variance in red cell change than a 250,000 margin; while with the more recent system now under study and practical applications, frequent checking of the specific gravity of the blood, and the cell plasma percentage, one can definitely estimate the trend of the change in the blood picture to a degree many times as sensitive as by the older method.

"In 1924, Barbour and Hamilton, 'recognizing the increasing importance attached to water exchange in the body for the study of many clinical and physiologic conditions,' described a new and convenient method of determining specific gravity, which was demonstrated at the meeting of the Southern Medical Association in 1928. Since that time the method has been 'modified by simplification, refinement of sensitivity, and extension of scope,' until at the present time, with ease and accuracy, the specific gravity can be determined in less than one minute. A falling-drop apparatus is used, and because of the fact that the method is 25 times more sensitive than the hemoglobin test and red cell count, upon which we heretofore had to depend in determining whether concealed hemorrhage was active or dormant, we may then

chart the curves frequently and accurately, and operate or withhold operation intelligently.

"Scudder's observations are trite and helpful: 'In shock uncomplicated by hemorrhage, the specific gravity of peripheral blood increases, indicating loss of water from the blood. In hemorrhage due either to external or internal loss of blood, there occurs a fall in the specific gravity of the peripheral blood.'

"When confronted with unmistakable signs of combined shock and hemorrhage, the problem is to determine: First, whether hemorrhage is actually progressive; second, does the degree of shock forbid exploration; and third, if bleeding is uncontrolled, may one hope, by rapid antishock treatment before and during entrance, to check hemorrhage, remove the cause and maintain physiologic coherence; or will it be a safer procedure to institute stabilizing therapy, under constant observation, anticipating spontaneous arrest of hemorrhage? Herein lies the crucial test of surgical judgment." The life of the patient frequently depends upon the surgeon's ability to determine whether the predominating symptoms are due to hemorrhage or shock.

ORGANS INJURED

As stated previously, the most frequent organs injured in order of their importance have been, in the writer's experience, spleen, liver, kidney, hollow viscus.

The differential diagnosis between ruptured spleen and ruptured kidney is obviously quite difficult, when one is not confronted with positive urinary findings characterized by blood in the urine. The writer has had occasion to open the abdomen for ruptured spleen basing the diagnosis on the absence of urinary blood when the kidney was badly damaged but the spleen intact. The present day simplicity and rapidity of intravenous urography has minimized the possibility of this error.

Pain in the left shoulder or supraclavicular fossa has been consistent in every case. Abdominal rigidity has been more marked in the upper left quadrant but not of the board-like type. Respiratory movements are limited in the left lower thorax. The transmission of breath sounds to the left upper abdomen is frequently present. Flatness in the left flank has not been consistent.

TREATMENT

Treatment in traumatic rupture of the spleen is surgical removal. Whether this is done immediately or delayed is one of surgical judgment. On reviewing the literature we find very few reported cases that have been treated by suture or packs. I do not feel that I should want to take the risk of attempting to suture a ruptured spleen unless the rupture was in the cortex and very minor in character, and this type of case has never come under my observation; if it has, I have not recognized it.

In our series of cases the spleen has been, in my mind, so severely injured that suturing would have been a very risky procedure and I consider the total removal can be accomplished in a much shorter period of time than suturing, and certainly without the same amount of risk of secondary hemorrhage.

Incision is first made along the border of the left rectus muscle and extending from just above the level of the umbilicus to the costal margin. If one wishes more room this can be accomplished by extending the incision at the costal margin laterally or by cutting the two lower ribs at their cartilaginous attachment which gives ample room for observation and manipulation. One should not extend the time of operation by attempting to work through a small incision. As soon as the peritoneal cavity is entered, the spleen should be immediately located, the pedicle isolated and clamps applied to minimize the loss of blood; this being accomplished, one can proceed to removing the large clots and free any adhesions that may be holding the spleen to the surrounding tissues. We ligate with chromic gut and do not depend upon one ligature to control the stump, feeling much safer when two separate points of ligation have been made. No attempt is made to remove all of the free blood, the large clots are

removed, and the abdomen closed without drainage.

In every splenectomy that we have performed, whether it has been for traumatic or pathological spleen, there has been an immediate postoperative rise in temperature, quite above the average, usually ranging from 102 to 104, with a rise in the white blood count, lasting over a period of 48 to 72 hours, gradually returning to normal. We find that this has been the experience of other surgeons; the cause of it has not been explained.

On careful review of reports of numerous writers and in reviewing the history of their cases, the average mortality rate has been about 28 per cent, the interval between the injury and the time of operation has been in direct ratio to the mortality, which increases with the time interval between onset of symptoms and operation and the extent of damage to the splenic tissue.

CONCLUSIONS

(1) Rupture of the spleen is a relatively frequent intra-abdominal injury.

(2) This type of injury occurs more frequently between the ages of six and twenty.

(3) Pain in left shoulder has been a constant factor in all of our cases.

(4) Blood specific gravity determinations are of distinct value.

(5) Treatment is removal.

(6) Mortality is in direct ratio to the time interval between accident and operation.

DISCUSSION

Dr. John E. Cannaday, Charleston: Dr. Harris has has a rather extensive experience with ruptures. I think his comments on the LaMotte densiometer are very pertinent. Dr. Fred Bailey is of the opinion that this is the greatest advance in abdominal diagnosis that has been made for a great many years; it gives almost absolute information as to whether bleeding is going on or whether the patient's symptoms are due to shock.

I have had a modest experience with traumatic ruptures of the spleen and I am inclined to believe that a good many of them are the result of automobile accidents. Many of these cases were postmortem examinations, the patient having been brought into the hospital in a moribund condition. The rupture of the spleen was of such a violent nature that probably the patient became moribund in a very few minutes.

A few months ago there was a report in the *New York Times* concerning a meeting of the American Physiological Association in Toronto, at which it was reported that the Kensington Research Laboratories in Philadelphia had been experimenting with a vegetable extract containing oxalic acid for the control of oozing, by increasing the coagulability of the blood and bringing it up to a supernormal state. Their experiments showed that the extract, which is made from a plant by the name of purseglove, injected in the vein of the patient, two c.c., and two or three c.c. in the muscle, will raise the blood coagulability to supernormal, and oozing or slow bleeding will be controlled to a very considerable extent. The trade name is coagulum. We have had a considerable experience with this substance in Charleston and have found that all of the claims that have been made for it are justified. In a case of hemophilia the bleeding was stopped in five minutes after injection.

Of the cases of ruptured spleen that I have had, one was a gunshot wound in a person attempting suicide. Another was a man whose spleen ruptured spontaneously without traumatism. This man had a tubercular spleen and tubercular cysts in the spleen. He had been at Battle Creek Sanitarium for several weeks of treatment and on his way home the spleen ruptured while he was riding on a passenger train. I operated on him a few hours after, removed the spleen, found a large amount of free blood, and found the tuberculous spleen. This patient recovered from the operation and in six months or so he died; at postmortem we found that he had a tubercular kidney condition.

Some people have advocated, in some of these extremely ill cases of ruptured spleen where the patient's life is hanging in the balance and where the surgeon is fearful of prolonging the operation to any extent, that it may be advisable in such very serious conditions to apply clamps to the splenic vessels and leave the end projecting out the abdominal wound, and remove the spleen a day or two later after the patient's condition has improved. I have not had any experience with that particular method, but you can see that it does have possibilities in a very severe case.

It is borne out by statistics that the mortality

from operative treatment of ruptured spleen is ordinarily about 37 per cent and the mortality in cases not operated is about 92 per cent.

Attempts at suturing the spleen have not been at all encouraging or satisfactory.

Dr. W. Hampton St. Clair, Bluefield: Living in Bluefield, we see a good many cases of injury to the abdomen. We find that our figures after operating correspond very closely to those Dr. Harris has given. In spite of the spleen's protection by the thoracic cage, rupture is rather frequent. If Dr. Harris does not mind, I would like to tell about an interesting case that we had recently in the Bluefield Sanitarium. It was a delayed hemorrhage from a ruptured spleen. The patient was a white male, age 33, who weighed 230 pounds. He was admitted to our hospital on December 21, 1938, in mild shock, with the following history. He stated that four weeks previously, in the middle of the night he was walking in his sleep and stepped out of a second floor window. Following that he was able, after a few minutes, to get up and walk into the house, and was taken to the hospital. He was said to have been suffering from internal injuries and shock. He was treated conservatively with transfusion and was able to leave the hospital in about two weeks. He got along fine for about two weeks. Then he came to visit his father in Bluefield and traveled on a bus for something over 100 miles. On his arrival there he was feeling all right but he took a laxative because he had been constipated for about three days, went to bed, and was awakened the next morning about six o'clock with rather severe epigastric pain. He thought his laxative was working on him, so he went to the bath room. When he reached the bath room he fainted. After a short time he was able to get back to the bed, and whenever he raised up after that he felt very faint. His bowels moved three times and the stools were said to be normal. He was seen by one of our doctors shortly afterwards and was then brought to the hospital in about two hours after the original pain. When he was admitted to the hospital his blood pressure was 88/60, pulse, 100; temperature, 97.6. When seen earlier his temperature would not go higher than 96. The examination was negative except that his abdomen was distended, he was semi-rigid and quite tender in the epigastric region, mostly around the midline. The blood count showed 70 per cent hemoglobin, 3,600,000 red cells, 17,000 white cells, 85 polymorphonuclears, and 30 bands.

There was some question about the diagnosis at that time on account of the fact that he had run a high temperature with his original injury. As Dr. Harris said, the temperature frequently goes between 102 and 104. At the hospital they considered this contraindicative to operation and put it off. There was the possibility of a ruptured viscus. After his admission to the hospital he was given a transfusion, 400 c.c. of whole blood, and then a laparotomy was performed. When we opened the peritoneal cavity it was found to be filled with blood clots which were semi-organized and some free blood. Most of this was on the left side, and it extended from under the left lobe of the liver down to the pelvis. When we had gotten that cleared away we found the bleeding point was localized in the spleen. Clamps were put on the pedicle of the spleen. This man weighed 230 pounds and it was a long way to the pedicle of the spleen, particularly with some organized clot that not only included the spleen but extended up the pedicle. The spleen was removed and found to show a horizontal fissure, a rupture which extended almost through the organ, practically dividing it into two pieces. This had partially healed, walling in a hematoma, and which examined was found to contain a more recent clot in addition to the hematoma, as well as some unclotted blood.

This operation presented some technical difficulties due to the patient's size and the condition around the spleen, and we were unable to put a ligature around the pedicle. We had two clamps on the pedicle and left those, and closed the wound around those, in addition to a cigarette Penrose drain. These clamps were removed in 48 hours, with no evidence of hemorrhage after that.

The patient had a rather stormy convalescence. Five days after the operation, in spite of using Wangensteen and other measures, it was necessary to do an enterostomy. After that he got along very well and was able to leave the hospital in about 29 days. At that time there was still a small amount of drainage of serum from his wound. He left the hospital on January 20. I saw him two days before I left home, Monday of this week, and he still has a small draining sinus in the upper angle of the wound. With a probe you can go in probably three inches. Aside from that he is feeling fairly well.

Dr. W. A. McMillan, Charleston: Years ago the railroad was responsible for a lot of our bad abdominal conditions, but today the automobiles are giving us this heavy toll. There is no condition that greets us with any more tragic features than a ruptured spleen, and the degree of shock following trauma is alarming. With my limited experience in these cases I find that the best thing I can do is simply apply a godo firm clamp and quit, not losing time and increasing shock, but doing all I can afterward.

Dr. Thomas L. Harris, closing the discussion: I want to call your attention for just a moment to this specific gravity apparatus. If you would like to see it demonstrated, I have a laboratory technician here who has done quite a little work with it. It takes only a minute to do it, and he can show you exactly how it is done.

He has here oxalated blood which he will use rather than stick somebody's finger to get blood. The blood is taken from the finger, just as you would take a drop of blood for a blood count. He drops the blood in at the top. You can follow the drop of blood going down until it hits this mark on the tube, at which point he takes the time. He has a stop watch and he trails the blood down until it comes to this point on the tube, he takes the time there, and that is all there is to it.

Thank you very, very much.

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MANAGEMENT OF BURNS

Management of severe burns requires careful attention to the prevention of shock, or its treatment if it is present, and scrupulous cleanliness in handling the burned area so as to avoid contaminating the wound, Roy D. McClure, M.D., Detroit, asserts in *The Journal of the American Medical Association* for November 11.

The severely burned patient, he declares, must be considered "a very sick patient who has a threatening toxemia (poison in the blood), alterations in the blood chemistry, a wound very susceptible to infection and pathologic changes in organs remote from the skin.

The essential principles which must be observed are: control of pain and restlessness, keeping the patient warm, giving fluids and blood transfusions when indicated, determining the loss of blood constituents by frequent blood studies, treating the burned area with as much aseptic precautions as a surgical incision, the prevention of skin contractures by proper and timely splinting and the early grafting of skin when necessary.

In 1937 there were 7,928 deaths from burns, fire and special accidents in the United States, Dr. McClure says. Of all the deaths resulting from burns 45 per cent occur in children less than six years of age and 80 per cent of these, according to G. C. Penberthy, M.D., Detroit, should be considered preventable. Dr. McClure says that the most good in the prevention of burns can be accomplished by the family physician, through his natural contact with his patients in their homes.

Research on burns has been largely concentrated on explaining the so-called toxic (poisonous) phase, which appears in from eighteen to twenty-four hours after the accident. Three theories have arisen: the physical, which assumes that there is local leakage of fluids and plasma proteins from the blood, resulting in a too concentrated condition of the blood and circulatory failure; the theory of contamination of the burned area with bacteria, which has not had much support, and the theory that a specific toxin (poison) is formed at the wound and that this is absorbed and goes into the circulation, resulting in toxemia and collapse. The toxic theory has had the most support.

A CASE OF HEMOLYTIC STREPTOCOCCIC SEPTICEMIA COMPLICATING TYPE IV PNEUMOCOCCIC LOBAR PNEUMONIA*

By O. G. KING, M. D.
Bluefield, West Virginia

During the past several years, much stress has been laid upon sepsis among the causes of death from pneumonia. Most of this investigation has had to do with the rôle played by the pneumococcus. Recently the streptococcus has received consideration in the study of pneumonoccic pneumonia, particularly as regards systemic blood invasion. The number of reported cases is too limited to warrant a clinical diagnosis of this condition. Even though there are certain uniform features, further study and observation will be necessary to determine whether or not there exists a characteristic clinical entity.

It is my purpose to add one case to the fifteen already reported in the literature. Of these fifteen, only one was a known case of hemolytic streptococcic septicemia complicating Type IV lobar pneumonia.

The prognosis has been unfavorable, as just one previously described case recovered. An early diagnosis of the condition has become increasingly important as our knowledge of sulfanilamide and sulfapyridine therapy has advanced.

CASE REPORT

A thirty-one year old white male entered the hospital April 12, 1937, complaining of shortness of breath, cough, and pain in right side of chest and upper abdomen.

The patient gave a history of having contracted a cold on April 8. That night he felt feverish and had several chills, and the following morning noticed pain in his right chest and right upper abdomen. On the second day, he began coughing up bloody sputum. On the third day he developed shortness of breath and soreness in the right upper part of his abdomen. All these symptoms continued to progress in severity until his admission to the hospital on the fourth day of his illness.

*Read before the Mercer County Medical Society, Bluefield, September 21, 1939.

THE AUTHOR

Dr. Otis Gardner King, Bluefield; President St. Luke's Hospital; Secretary Mercer County Medical Society; graduated Medical College of Virginia; Internist; Associate Member American College of Physicians.

His past history revealed that one month ago he had had an attack of influenza which had kept him in bed for three days. He had not felt well since that time and seemed to tire more easily than usual under ordinary exertion. During the past three years he had had repeated attacks of shortness of breath with palpitation and pain in the region of his heart. These attacks usually followed a heavy meal, and were often accompanied by gaseous distention of his abdomen. Soda would sometimes give relief, but often the distention would last for two or three days. The palpitation and heart distress usually subsided in about thirty minutes. Aside from being nervous he had no particular complaints in the intervals between the attacks. He had taken three or four drinks of whiskey almost daily during the past three years, supposedly to calm his nerves. There was no history of rheumatic fever.

When seen in his home about twenty-four hours after the onset of present illness, physical examination showed a well nourished, moderately ill man. His nail beds and lips were slightly cyanotic. Pulse was 110; respiration, 32; temperature, 101 degrees F., and blood pressure, 120/100. The mucous membranes of his nose and throat were generally inflamed.

Inspection of his chest revealed a wavy apex beat of the heart, the definite location of which could not be established. Palpation over this area gave a distinct thrill. Percussion gave the impression of slight cardiac hypertrophy, in all diameters. There was a systolic murmur of high pitch, crescendo in type, over the apex, which did not radiate. Expansion was limited over the right side of the chest. Breath sounds over the left were exaggerated and over the right diminished. A few crepitant râles

were heard over the middle lobe of the right lung. The abdomen was slightly distended and tender to pressure over the gall-bladder area.

Examination at time of admission, two days later, showed an increase in the dyspnea and cyanosis. The scleræ of his eyes were icteric. Engorgement of neck vessels was present. The heart was moderately enlarged both to the right and left, and the apex impulse was diffuse. The heart rate was irregular, from 130 to 140, with a pulse deficit of 20 to 40 per minute. The quality of the heart sounds was poor. A faint non-radiating diastolic murmur could be heard over the apex. Blood pressure was 115/100 and respiration 36.

The chest showed diminished excursion on the right. Tactile fremitus was increased over the right upper and middle lobes. Breath sounds over these areas were bronchial with numerous fine and coarse râles present. The right upper quadrant of the abdomen was still tender to pressure and there was a moderate amount of distention.

Urinalysis showed a trace of albumin, an occasional finely granular cast, and a few red blood cells. Blood showed a red cell count of 4,350,000 with a hemoglobin of 90 per cent (Sahli); white cell count, 13,000; mature polymorphonuclears, 66 per cent; immature forms: myelocytes, one per cent; juveniles, three per cent; "stabs", six per cent; small and large lymphocytes, 22 per cent; eosinophiles, one per cent, and basophiles, one per cent. The icterus index of the blood was 20 units.

The sputum was examined (Neufeld's method) and Type IV pneumococci found. A blood culture was negative. The blood Kahn was negative.

It was obvious this patient was critically ill. He had an old heart lesion, probably mitral, and due quite likely to rheumatic fever, Type IV lobar pneumonia in the right upper and middle lobes, acute cholecystitis, and a failing circulation from auricular fibrillation.

Treatment consisted of a continuation of digitalis, morphine and codeine for rest, and glucose, oxygen, and transfusions of citrated blood when indicated.

After his second hospital day, the patient's condition improved. His temperature fell by lysis for three days and reached normal on the eighth day of his illness. The clinical outlook at this point was so encouraging a good prognosis was given his family.

Forty-eight hours later, his temperature rose to 102 degrees F., and his condition became rapidly worse. A systematic review of the case, with additional laboratory and x-ray work failed to provide a satisfactory explanation. His general condition became grave. A few hours before death, which occurred on the twelfth day of his illness, he developed clinical meningitis and uremia. A blood culture made the day previously showed an abundant growth of streptococcus hemolyticus, on both dextrose broth and nutrient agar. The non-protein nitrogen content of the blood was 192 mg. per hundred cubic centimeters. Urinalysis showed two plus albumin with many granular casts, pus cells, and red blood cells. The sputum was still positive for Type IV pneumococci. An x-ray showed tremendous enlargement of the cardiac shadow in all diameters and also an increase in density in the apex of the right lung. (Fig. 1)

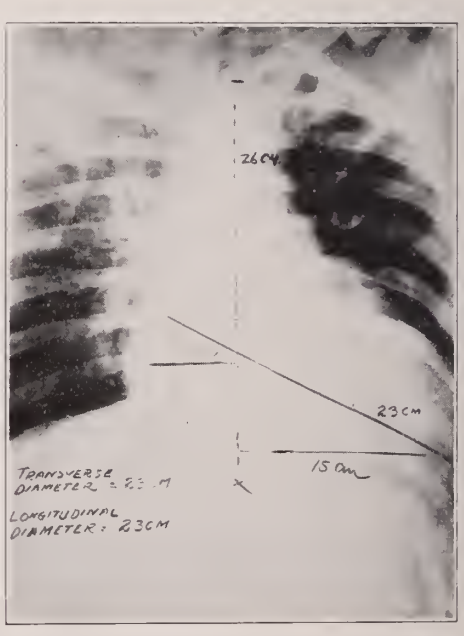

Fig. 1. Roentgenogram of chest forty-eight hours following crisis shows no evidence of empyema or recrudescence of pneumonia. There is still some increased density in the right apex, but most of middle lobe has resolved. The cardiac shadow shows marked hypertrophy in all diameters.

A blood count made twelve hours before death showed a white count of 29,400; mature polymorphonuclears, 58 per cent; small and large lymphocytes, six per cent; immature forms, myelocytes, three per cent; juveniles, seven per cent; "stabs", 26 per cent. (Fig. 2)

Day of Disease	Leucocytes	Mature Polys	Small & Large Lymphs	Immature Polys: Myelocytes	Immature Polys: Juveniles	Immature Polys: "Stabs"
4	13,000	66%	24%	1%	3%	6%
5	14,300	72%	12%	2%	6%	8%
6	17,400	75%	10%	2%	3%	10%
7	18,000	78%	5%	1%	4%	12%
8	14,400	80%	10%	1%	2%	7%
11	17,200	77%	11%	2%	3%	7%
12	29,400	58%	6%	3%	7%	26%

Fig. 2. White and differential counts according to Schilling's classification, showing an ascending "shift to the right" up to the eleventh day of the disease followed by a marked "shift to the left."

A necropsy limited to the abdomen was done. The kidneys, liver, spleen, pancreas, and gall-bladder were enlarged and apparently inflamed. The gall-bladder was distended, its wall hypertrophied, with a small gangrenous area noted. In the pancreas were multiple small abscesses. Numerous subcapsular petechiæ were seen in both kidneys. Microscopic sections from the kidneys, liver, gall-bladder, spleen, and pancreas showed a pus cell infiltration with much cellular degeneration, which was most pronounced in the liver.

COMMENT

This case is fairly typical of a streptococcic septicemia complicating lobar pneumonia. Even though acutely ill with pneumonia, this patient showed clinical and laboratory evidence of improvement up through the eighth day of the disease. On the ninth day he developed a sudden exacerbation of the clinical picture. There were no changes in the pulmonary signs and symptoms. He died in the course of three days from a complication which remained obscure until a positive blood culture of streptococcus hemolyticus was reported.

This again stresses the importance of early and frequent blood cultures in unexplained pyrexia following the crisis in pneumonia. All reported cases have shown a leucocytosis developing gradually or suddenly and accompanied by a "shift to the left." Serial blood counts are of practical value since a rise in the percentage of immature granulocytes appears to have a distinct diagnostic importance.

The portal of entry of the secondary invader can only be surmised. There is evidence in this case which points toward previous cardiac disease. Chronic alcoholism may have been a predisposing factor. I believe that contact infection can be ruled out by the fact that isolation measures were practiced. This patient had an old mitral heart lesion, and following the onset of pneumonia developed auricular fibrillation. Since there were no signs of empyema or recrudescence of the pneumonia, it is plausible to believe that there was a harbored focus in the heart which gained access to the circulation following the crisis.

SUMMARY

1. A case of hemolytic streptococcic septicemia complicating Type IV pneumococcic lobar pneumonia is reported.

2. Blood stream invasion from a harbored focus in the heart is suggested.

3. The diagnosis is established by a positive blood culture. A leucocytosis accompanied by a "shift to the left" of the Schilling count is of prognostic value.

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HEARING DEFECTS

Intelligent attempts of teachers to facilitate lip reading by pupils with defective hearing would be a tremendous advantage to such children in their school work, Louise M. Neuschutz, New York, suggests in *Hygeia, The Health Magazine* for December.

"For such pupils," she says, "a front seat near the window is almost a prerequisite. The face of the teacher should be in the light, so that the hard of hearing pupil can watch her lips. To speak as naturally as possible, moreover, avoiding exaggerated lip movements is the best way to help him. Word for word utterance is to be avoided. Eyes and mind cannot take in particles of speech; the lip reader must have a full sentence in view before he will be able to get at the context. Shouting and gesticulating will only serve to upset him, and he won't be able to understand anything. In case a sentence is hard to read from the lips, its phrasing might be changed, thus making it easier to see."

Tuberculosis Abstracts

Furnished Through the Courtesy of the West Virginia Tuberculosis Association

Frequently the physician is asked whether or not it is safe for a tuberculous person to marry. The danger of infecting children who may be born of a tuberculous parent is well recognized. What of the possibility of infecting the other marital partner? Because of contradictory expressions of opinion on this point, H. I. Spector sought for an answer by means of the statistical method.

MARITAL TUBERCULOSIS

Marital tuberculosis is defined as the development of clinical tuberculosis in both husband and wife. One must not, however, apply this definition dogmatically, for it cannot, in all cases, be assumed that the disease has been transmitted by the consort, and it is also possible for a tuberculous consort to marry a supposedly non-tuberculous mate who at the time of marriage had an unrecognized latent or active tuberculosis. But undoubtedly infection from the tuberculous marital partner to the healthy one takes place in the majority of instances of marital tuberculosis.

A review of the literature regarding marital tuberculosis reveals that conclusions of various writers contradict each other. The frequency of marital tuberculosis is reported by one writer as 2.9 per cent, by another as 58 per cent and variations between these figures by several others. The more recent literature, however, seems to concur with the view that marital tuberculosis is much more common than in the general population.

The writer received 208 replies from questionnaires sent to physicians in the United States, European and South American countries. There was a divided opinion as to the frequency of marital tuberculosis; the majority believing that tuberculosis in both husband and wife is not common. Many, however, believed the incidence to be greater than in the general population. The number of physicians who were inclined to permit marriage between arrested tuberculous individuals was greater than those who permitted marriage of a tuberculous individual with a non-tuberculous one. The majority permitted tuberculous couples to have children, but with reservations.

In addition to these collected opinions the author made a study of marital tuberculosis based on 11,193 cases of tuberculosis reported during a ten-year period to the Health Division of St. Louis. From this group came 210 couples (420 persons) all with clinical, active disease. It was found that while only 3.8 per cent of the reported cases of tuberculosis in married people are in both husband and wife, nevertheless the risk of contracting the disease when in marital contact with an active case is 29 times greater than it is in the general population.

About one-third were Negroes—the rest white. Sputum was positive in both consorts in 20 per cent of cases, positive in either wife or husband only in about 25 per cent. In 54.5 per cent, sputum was negative or questionable.

Interested in knowing whether the danger of infection from the marital tuberculous partner is greater to the healthy consort or to the other contacts, especially children, case histories from the viewpoints of infection and the development of clinical disease in contacts were analyzed. It was found that the incidence rate in contacts was nine per cent or 69 times greater than in the general population.

Marital Tuberculosis, H. I. Spector, M. D., Amer. Review of Tuber., Vol. XL, No. 2, Aug., 1939.

Numerous mechanical devices have been invented to prevent the inhalation of silica. Recently the interest of industrial hygienists has been centered on a means of preventing silicosis by the inhalation of metallic aluminum. *The Canadian Medical Association Journal* reports the results of experiments carried on jointly by a metallurgical engineer, a surgeon and a medical research worker. Brief notes of the report follow.

PREVENTION OF SILICOSIS BY METALLIC ALUMINUM

Rabbits exposed to quartz dust for six months all showed well developed silicosis. Rabbits exposed to quartz dust plus one per cent metallic aluminum powder for the same period did not develop silicosis.

Experimental evidence strongly suggests that the toxicity of silica is due to that portion of the silica which is in the dispersed colloidal form. The addition of small quantities of metallic aluminum powder almost completely inhibits the solubility of silicious material in the beaker. The authors' experiments show that the "solubility" of silica is a measure of the quartz particle. They have demonstrated that the absorbed film of hydrated aluminum oxide is sufficiently impermeable to prevent silica from pass-

ing into "solution," i.e., the state in which it will form silico-molybdic acid.

All the experimental evidence indicates that the inactivation of quartz by aluminum is not a systemic reaction but takes place only when aluminum is closely associated with quartz in body cells or fluids. Subcutaneous injections and dusting experiments showed that the minimum amount of metallic aluminum necessary to inactivate quartz in tissues is one per cent when uniformly mixed with quartz.

Among the conclusions reached by the experimenters are these:

Metallic aluminum on being converted into hydrated alumina reduces the toxicity of quartz in tissues in three ways, (a) by flocculation; (b) by absorbing silica from solution; but (c) chiefly by coating the quartz particle with an insoluble and impermeable coating.

This coating has been definitely identified as a gelatinous hydrated alumina, which on drying forms the crystalline alpha aluminum mono-hydrate, Boehmite ($Al^2O^3H^2O$).

No animals whose lungs on analysis contained one per cent or more of metallic aluminum have shown any evidence of silicosis up to periods of seventeen and a half months in contrast to well developed silicosis in the quartz control rabbits in seven months.

In lungs having less than one per cent aluminum where fibrosis is present there is no demonstrable evidence of hydrated alumina in the fibrotic areas.

In lungs where the hydrated alumina is shown on staining to be intimately and uniformly mixed with the silica particles fibrosis has never been found.

Aluminum dust for the prevention of silicosis should be of a particle size below five microns and grease-free.

It should be uniformly mixed in any inhaled dust and bear a definite percentage to this dust at all times.

To prevent silicosis, aluminum dust may be inhaled daily independently of the silicious dust.

The aluminum dust must be sufficiently concentrated in the inhaled dust to provide a minimum concentration in the lung of one per cent at all times.

The inhalation of aluminum dust in large quantities over long periods of time showed no effect on the general health of the animals and no evidence of toxicity or damage to tissues.

Aluminum dust in any concentration necessary to prevent silicosis has been shown to be hundreds of times below the explosive concentration of aluminum powder.

The Prevention of Silicosis by Metallic Aluminum by J. J. Denny, M. Sc., and others, Canadian Med. Assn. Jour., Vol. 40, No. 3, Mar., 1939.

AMERICAN PHYSICIANS HONORED

The benevolent character of the service which physicians give to suffering humanity is typified by the general practitioner of medicine and the army medical officer thus memorialized, *The Journal of the American Medical Association* for November 11 says in commenting on an announcement by the Postoffice Department that the late Major Walter Reed, M.D., of the Army Medical Corps, and Crawford W. Long, M.D., of Georgia, will be among those honored in a famous American series of postage stamps to be issued soon.

"Although other names might well have been added to this brief list, no one will deny that the two selected fully merit this honor," *The Journal* says. "Our eastern shores and many of our cities were invaded some ninety-five times by yellow fever before Drs. Reed, Carroll, Agramonte and Lazear conducted experiments in Cuba which demonstrated that yellow fever is transmitted by the bites of certain species of mosquitoes. Yellow fever had been present in the western hemisphere for at least 300 years and had caused tens of thousands of deaths. Following this discovery by Walter Reed and his associates in 1900, yellow fever soon disappeared from North America and has never returned. Dr. Crawford W. Long, a general practitioner of medicine, on March 30, 1842, first used sulfuric ether as an anesthetic during the performance of a surgical operation. Dr. Long performed this operation on James M. Venable in Jefferson, Jackson County, Georgia, a small town then many miles from a railroad."

The Journal called attention last year to the disparity between the number of physicians in other countries who had been honored by special issues of postage stamps and the number so honored in the United States.

President's Page

The year 1939 is almost ended and my term as your presiding officer is nearing completion. Although I undertook this responsibility with considerable fear and trepidation, I must admit that in spite of some problems left unsolved, the year has been a most enjoyable one. The visits to the different parts of the state where unexcelled hospitality and good fellowship were extended, proved to be well worth the effort put forth. I still think the medical profession is at the top, and I am proud of its achievements.

While some of our problems are still unsolved there is a better understanding and knowledge of them, and with persistence, patience, charity and unselfishness they will gradually be worked out. The new Medical Service Committee is organized and working, while the committee on Postgraduate Education is making interesting plans for carrying on this work.

The combined meeting of the Virginia and West Virginia State Associations next year on July 29, 30 and 31, at White Sulphur Springs promises to be a great success. Plans are already being made and many prominent speakers have already accepted our invitation. The program of this meeting is being planned to appeal particularly to the general practitioner, and there will be round table discussions with able leaders on many practical subjects. Make your plans now to attend this unusual meeting of the two Virginias.

I wish to express my sincere appreciation of the splendid cooperation and work of the membership of our Association, with added thanks to the committees and the Council. The splendid help and association with our Executive Secretary, Mr. Joe W. Savage, has added much pleasure to the year's work. Your new President, Dr. Frank V. Langfitt, is a man of fine personality and unusual ability, and with the proper help from you will go a long way toward solving your problems.

Wishing you a very Happy Christmas and a prosperous New Year, I am

Ray M. Bobbitt

President.

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THE A. M. A. PLATFORM

The Board of Trustees of the American Medical Association, on November 16, adopted an official platform to guide the economic and legislative destiny of organized medicine. The platform, consisting of eight planks, outlines in definite form the policies of the parent organization toward changes or deviations in the present system of medical practice. The platform does not voice opposition; instead it advocates in a positive way the principles upon which evolutionary changes in medical practice must be made to meet the approval of organized medicine.

Here is the platform of American medicine:

1. The establishment of an agency of federal government under which shall be coordinated and administered all medical and health functions of the federal government exclusive of those of the Army and Navy.

2. The allotment of such funds as the Congress may make available to any state in actual need for the prevention of disease, the promotion of health and the care of the sick on proof of such need.

3. The principle that the care of the public health and the provision of medical service to the sick is primarily a local responsibility.

4. The development of a mechanism for meeting the needs of expansion of preventive medical services with local determination of needs and local control of administration.

5. The extension of medical care for the indigent and the medically indigent with local determination of needs and local control of administration.

6. In the extension of medical services to all the people, the utmost utilization of qualified medical and hospital facilities already established.

7. The continued development of the private practice of medicine, subject to such changes as may be necessary to maintain the quality of medical services and to increase their availability.

8. Expansion of public health and medical services consistent with the American system of democracy.

1940 MEETING DATES

The date for the 1940 combined meeting of the Association with the Medical Society of Virginia at White Sulphur Springs has been set for July 29, 30 and 31. This date was agreed upon at a conference of representatives of the two societies held at White Sulphur Springs in October where preliminary plans were worked out.

The conferees agreed that the entire convention program should be made up of outstanding leaders in the various fields of practice and that no members of either society would appear on the program except in the role of discussants. Each society will be allowed to select one discussant for each paper. All general sessions will be held during the morning hours. The afternoons will be given over to the various specialty groups for round table discussions led by the visiting essayists. General and section programs will be arranged to be of the greatest practical interest to the men doing general practice.

One of the features of the 1940 meeting will be a competitive golf tournament between the members of the two state societies, to be played on Sunday afternoon, prior to the opening of the convention. The golf committee will consist of Dr. S. S. Hall, Clarksburg, and Dr. R. H. Dunn, South Charleston, representing West Virginia, and Dr. Jack Emmett, Clifton Forge, and Dr. Edwin Wood, Charlottesville, representing Virginia.

Another planned feature will be the scientific exhibits, a department in which West Virginia has not been particularly active in recent years. Dr. W. H. McGee, Richmond, and Dr. F. R. Whittlesey, Morgantown, will be in charge of the exhibits.

The conference of the representatives of the two societies was featured by a spirit of understanding and harmony that augurs well for the combined gathering next summer. Although there were many points at variance between the two groups, they were all amicably adjusted and worked out to the mutual satisfaction of the conferees. While there will be some minor changes in the traditional convention routine of both societies, the general convention plans for both groups remain the same. Association members, noting minor changes, will no doubt take such changes philosophically and realize that some concessions had to be made by both sides.

COMMITTEES AT WORK

While we have no forehand knowledge of any prospective recommendations of the new Association Committees on Medical Service and on Postgraduate Education, we do know that these two important groups have worked long and diligently since their creation at the White Sulphur Springs meeting, and that their studies will be placed before Association members in the near future. It is generally conceded that there is much room for development in these two important fields.

The original work of the Medical Service Committee has so far been confined to industrial practice and a study of this field is now being made. The committee has also displayed a lively interest in a number of hospital practices and will probably confer with Hospital Association officials on mutual problems in the near future. This committee expects to make its first report at the December Council meeting.

The Postgraduate Committee met in Charleston in October at which time it was decided to work out a five year program of graduate education in West Virginia. Subcommittees of the general committee were then appointed to (1) start work on a comprehensive five year program; (2) finance the five year program; (3) gather all available data from other states. Several subcommittee meetings have already been held.

It was the general feeling of the Postgraduate Committee that any program of graduate education in West Virginia should be financed through the State Medical Association and not through outside organizations. It was also agreed by the committee that graduate education should not be confined to a limited field but should cover the general medical problems of the men in general practice. Among the general problems discussed were pneumonia, acute surgical diagnosis, treatment of shock, dehydration and management of neuroses.

A preliminary report on the Postgraduate Committee's work will be forthcoming in the near future. The proposed five year program will be submitted to the Association for approval before any definite steps are taken.

DIVISION OF FEES UNLAWFUL

Apparently it is a little known fact that fee splitting in West Virginia is unlawful and is punishable by fine and imprisonment, and revocation of license for second offense. The West Virginia statute relating to the division of fees was enacted in 1917 and is found in Section 8, Article 3, Chapter 30 of the West Virginia Code. As a number of recent inquiries have been received at the Association headquarters with reference to this law, we quote Section 8 in its entirety:

"It shall be unlawful for any physician or surgeon in this state, directly or indirectly, to divide, or agree to divide, any fee or compensation of any sort whatsoever, charged for a surgical operation or for medical services, with any other physician, surgeon or other person who brings, sends or recommends a patient to such surgeon or physician for treatment, without the express knowledge and

consent, previously had, of the person paying such fee or compensation, or against whom the same may be charged. It shall be unlawful for any physician, surgeon or other person residing in this state to accept any fee or other compensation from any other surgeon, physician or other person not residing in this state for taking, sending or recommending a patient for treatment to such non-resident physician, surgeon or other person. Any person violating the provisions of this section shall be guilty of a misdemeanor, and, upon conviction thereof, shall be fined not less than one hundred nor more than one thousand dollars for each offense, and, in the discretion of the court, may be imprisoned in the county jail not to exceed twelve months in addition to said fine. If any person shall be convicted of a second offense under the provisions of this section, the state public health council shall revoke the certificate licensing such person to practice medicine and surgery in this state."

ASSOCIATION MEMBERSHIP STATUS

As the year 1939 nears its close it is reassuring to note the healthy increase in Assotion membership. Sixteen county societies have no delinquent members and six societies have but one delinquent member each. There are less than 25 unpaid members in the entire state. The total Association membership is 1,276, with 126 new members added since last January first. The Kanawha Medical Society has reported 18 new members, Fayette Society 15, and McDowell Society 13.

County societies with 100 per cent paid up membership rosters for 1939 are Barbour-Randolph-Tucker, Boone, Central West Virginia, Fayette, Hancock, Kanawha, Logan, Marshall, Mason, McDowell, Mercer, Potomac Valley, Preston, Raleigh, Taylor and Wetzel.

County societies with but one delinquent are Doddridge, Eastern Panhandle, Greenbrier Valley, Parkersburg Academy, Summers and Wyoming.

TWENTY-FIVE YEARS AGO

(Gleaned from the West Virginia Medical Journal, Nov., 1914)

Original articles appearing in the December, 1914 JOURNAL were by Dr. J. W. McDonald, Fairmont; Dr. S. L. Jepson, Wheeling; Dr. H. G. Tonkin, Martinsburg; Dr. H. W. Keatley and Dr. R. M. Bobbitt, Huntington.

"An examination for licensure was held at Clarksburg on October 13, 14 and 15. The examiners were Drs. Golden, Lind and Jepson. There were twelve applicants. The following received licenses: Drs. William P. Black, Rupert; R. H. Cather, Flemington; Joseph U. Rohr, Catonsville, Md.; Ivy G. Shirkey, Sissonville; Charles A. Young, Rio; W. J. Judy, Glen Falls; O. R. Kackley, Pleasant City, Ohio; R. K. Sell, Hanover, Pa.; Mabel S. Boyes, osteopath, Woodsfield, Ohio."

"At present there are 73 graduate nurses in Charleston. The Charleston General Hospital has 20 pupil nurses in training, the Barber Hospital 10, the McMillan Hospital seven, and the St. Francis Hospital five."

"Dr. A. P. Butt, secretary of the State Medical Society has recently been in Philadelphia doing some postgraduate work.

"Dr. J. M. Barr of Wierton is spending a few weeks at "The Pines" in Asheville, N. C., on account of a little breakdown in health occasioned by overwork and forgetfulness of his own physical condition."

"The State Board of Health, with the very valuable aid of Surgeon Clark of the United States Public Health Service, has prepared a new public health bill for submission to the next legislature. It has been submitted to the governor, who is satisfied with the principal features of the bill. We suggest that no other bill be introduced, lest a division of sentiment be caused, with the result that no advanced health legislation that the state so badly needs will be secured."

BACON NOT FOR INFANTS

There is no rational basis for the common practice of giving bacon to babies, the October issue of *Hygeia*, declares. The practice originated from the belief that the fat contained in bacon carried with it some valuable nutritional element.

General News

PUBLIC HEALTH MEETING

The annual meeting of the West Virginia Public Health Association was held at Fairmont on November 6-8, 1939, with more than 150 registered members in attendance. Dr. W. H. Riheldaffer of Romney, health officer for the eastern West Virginia district, was elected president; Miss Sarah Switzer, Logan and Mr. James McKewer, Wheeling, vice presidents, and Miss Dorothea Campbell, Charleston, secretary-treasurer.

Leading speakers on the Fairmont program were Dr. Carl E. Buck, New York, field director of the American Public Health Association; Dr. Henry Talbot, director of the Bureau of Venereal Diseases of the Connecticut Health Department; Dr. Joseph W. Mountin, assistant surgeon general, U. S. Public Health Service; Dr. Halbert L. Dunn, chief statistician of vital statistics, Bureau of the Census, Washington; Dr. Karl Minninger of Topeka, Kansas, author of "The Human Mind" and "Man Against Himself"; Dr. Edwin F. Daily, director, Maternal and Child Health Division of the U. S. Department of Labor, and Mr. Leonard Male, milk consultant of the U. S. Public Health Service.

SOUTHERN MEDICAL MEETING

Sixteen members of the West Virginia State Medical Association presented papers before the thirty-third annual meeting of the Southern Medical Association at Memphis on November 21-24, 1939. One of the outstanding addresses of the four day session was the president's annual address delivered by Dr. Walter E. Vest, Huntington, before the general meeting at the Peabody Hotel on the evening of November 22. His subject was "Medicine as a Profession."

Other Association members and their subjects listed on the Southern Medical program follow:

"The Effect of Anoxemia on Some Bodily Functions," by Dr. Edward J. Van Liere, dean of the University School of Medicine, Morgantown.

"Common Errors in the Diagnosis and Treatment of Anemias," by Dr. P. A. Tuckwiller, Charleston.

"Epidemic Diarrhea of the Newborn," by Dr. Thomas G. Folsom and Dr. George Lyon, Huntington.

"Chorea of Infectious Origin," by Dr. E. F. Reaser, Huntington.

"Hypothyroidism as an Etiological Factor in Seasonal Dermatitis," by Dr. J. E. Hubbard and Dr. W. B. Martin, Huntington.

"The Chronic Female Pelvis," by Dr. R. J. Wilkinson, Huntington.

"Fracture of the Shafts of the Tibia and Fibula," by Dr. Howard A. Swart, Charleston.

"Use of Oxygen in Inflating Joints to Break up Adhesions," by Dr. E. Bennette Henson, Charleston.

"Treatment of Leucorrhea During Pregnancy," by Dr. A. P. Hudgins, Charleston.

"Differential Diagnosis in Certain Types of Renal Tumors," by Dr. Ray M. Bobbitt, Huntington, president, West Virginia State Medical Association.

"An Analysis of Periodic Physical Examinations for Five Years," by Dr. J. J. Brandabur, Huntington.

"Effects of Foods and Drugs on Cataracts," by Dr. Thomas W. Moore, Huntington.

"Professional Anesthesia in a Small Community," by Dr. Eldon B. Tucker, Morgantown.

EARLY APPENDECTOMY IN WEST VIRGINIA

(Editor's Note: In a recent discussion of appendicitis at one of the Charleston hospitals, Dr. V. T. Churchman, Sr., reported an early case during his first year of practice at Alderson in 1889. At the request of those who heard the discussion, Dr. Churchman prepared the report in writing and it has been sent to the JOURNAL. We are glad to publish this early report, particularly for its historical significance.)

While in general practice at Alderson, West Virginia, I had the following case of interest.

In August, 1889, I had a patient suffering with some obscure abdominal trouble. There was severe pain located in the upper portion of the right pelvic region, abdominal muscles very rigid and the right leg drawn up. The temperature was very high, and it was almost impossible to count the pulse. The patient had been seen by another physician whose diagnosis was obstruction of the bowels. He had ordered a 'large' dose of castor oil which had been very effective, but the pain had not been relieved. I was unable to make a diagnosis, and two other physicians, Dr. Barksdale and Dr. Spicer were called in consultation.

A diagnosis of "abscess of the bowels" was finally concurred in, but the patient continued to grow worse and died on the third day.

I succeeded in getting a postmortem, at which Drs. Barksdale and Spicer were present, and found abdominal cavity well filled with pus and blood, finally locating a ruptured appendix.

On October 4, 1889, I was called to see a boy about 14 years of age, suffering with severe pain in the right pelvic region, temperature 103 degrees, pulse extremely fast, could not count it, muscles of abdomen very rigid. I recalled my case of the previous August, and asked for consultation with same two physicians, who concurred in my diagnosis of abscess of the appendix. After much persuasion the parents agreed to an operation, and with the assistance of these physicians, I opened the abdomen freely and found a large, fluctuating appendix, carefully brought same forward into the wound and sutured same to the edges of the wound. I then opened the swollen appendix, releasing a quantity of thick pus. After cleansing same with a 1-3000 bichloride solution, I dressed the wound with iodoform gauze and abdominal bandage. I dressed the same daily for about a week and then did a secondary operation, viz., cut off the now nearly normal appendix, covered end with peritoneum, with purse-string suture and dropped back into abdomen. I put in a wick of iodoform gauze and dressed.

There was never any discharge from the wound and on the sixth or seventh day closed the external wound, and the patient made an uneventful recovery.

CONFERENCE OF STATE SECRETARIES

The annual conference of state medical society secretaries and journal editors was held at the headquarters of the American Medical Association in Chicago on November 17 and 18, 1939. West Virginia was represented by Dr. F. R. Whittlesey, Morgantown, for the JOURNAL, Dr. James R. Bloss, of the Board of Trustees, and Mr. Joe W. Savage, executive secretary.

Speakers at the A. M. A. conference included Dr. Rock Sleyster, president; Dr. Nathan B. Van Etten, president-elect; Dr. W. C. Woodyard, director of the Bureau of Legal Medicine; Dr. Austin A. Hayden, secretary of the Board of Trustees; Dr. F. S. Crockett, Committee on Legislative Activities, and Mr. Thomas A. Hendricks, executive secretary of the Indiana State Medical Association.

County Society News

CABELL COUNTY

The regular monthly meeting of the Cabell County Medical Society was held at the Governor Cabell Hotel, Huntington, on the evening of November 9 with a good attendance. The guest speaker was Dr. Frank H. Mayfield of Cincinnati who talked on "Chronic Subdural Hematomas." Dr. Mayfield also discussed the indications for technique, and interpretation of encephalograms.

A routine business session followed the scientific program.

JAY L. HUTCHINSON, *Secretary*.

CENTRAL WEST VIRGINIA

The Central West Virginia Medical Society met at Buckhannon, November 17, 1939. Following the dinner, there was general discussion regarding the Farm Security Administration medical program, and it was decided that each county should handle this problem as it sees fit.

At the last meeting, Dr. F. A. Irmen, Weston, was elected to membership, with the understanding that consent be given by the Lewis County Medical Society. This consent was granted. Dr. J. C. Huffman, Buckhannon, and Dr. S. W. Jabaut, Webster Springs, a former member of the Preston County Medical Society, were elected to membership in the Central West Virginia Medical Society.

The meeting was then turned over to the program chairman, Dr. A. B. Bowyer, who introduced the first speaker of the evening, Dr. E. B. Tucker, Morgantown, who read a paper entitled, "Pre- and Postoperative Treatment." This paper was then discussed by all the members. The second speaker was Dr. H. H. Haynes, of Clarksburg, who gave a lantern slide demonstration of the care and fixation of fractures with metal splints.

Following the scientific program, officers for 1940 were elected as follows:

President, Dr. Homer S. Brown, Sutton; vice president, Dr. J. M. Cofer, Bergoo; secretary-treasurer, Dr. A. B. Bowyer, Buckhannon.

The next meeting will be held at Sutton, in February, and the committee in charge consists of Drs. M. T. Morrison, J. C. Eakle, and W. E. McIlwain.

A. B. BOWYER, *Secretary*.

EASTERN PANHANDLE

A cancer institute sponsored by the Eastern Panhandle Medical Society for the Women's Field Army of the American Society for the Control of Cancer (Eastern West Virginia Division) will be held at the Shenandoah Hotel, Martinsburg, on December 13. The clinic will be in charge of Dr. L. Clarence Cohn, Baltimore, associate of the late Joseph Colt Bloodgood, who will be accompanied by his technician to do frozen section examinations of biopsy cases. Dr. William Neill, Baltimore, associate of the Howard Kelley Hospital, will speak on "Facts of Interest to Women Concerning Cancer."

The institute will open at noon with the regular luncheon and meeting of the Eastern Panhandle Society in the Gold Room of the Shenandoah Hotel, with Dr. Cohn and Dr. Neill as speakers. The clinic and lecture on cancer will be held at three o'clock. Cancer exhibits by the American Society for the Control of Cancer will be on display from 10 a. m. until 10 p. m. Dr. William A. Wallace, Martinsburg, member of the State Association Cancer Committee, is in charge of the program.

It has been announced that no patients will be examined at the clinic unless sent in by the family physician with a typewritten copy of the history of the case. No fee will be charged. Diagnosis will be made and the family doctor will receive a report on the treatment advised.

KANAWHA COUNTY

Dr. Russel Kessel, Charleston, was elected 1940 president of the Kanawha Medical Society at the November 14 meeting held at the Daniel Boone Hotel. He will succeed Dr. Thomas G. Reed. Dr. Vernon L. Peterson was elected vice president and Dr. William C. Thornhill was elected secretary-treasurer to succeed Dr. A. Spates Brady, Jr.

The guest speaker of the evening was Dr. Mont Reid, chief of the surgical staff of the Cincinnati General Hospital. He gave a highly interesting and practical talk on "Healing of Wounds," illustrated with lantern slides.

A. SPATES BRADY, JR., *Secretary*.

LOGAN COUNTY

A joint meeting of the Logan County Dental Society and the Logan County Medical Society was held at the Aracoma Hotel, Logan, on the evening of November 8 with a good attendance from both organizations. The guest speaker was Dr. Hugh W. MacMillan, M. D., D. D. S., Professor of Oral Surgery at the University of Cincinnati. He discussed, "The Medical and Dental Conditions of the Head and Neck."

Dr. Wade Hill, president of the dental society, and Dr. J. Lester Patterson, president of the medical society, presided.

J. W. CARNEY, *Secretary*.

MERCER COUNTY

The regular monthly meeting of the Mercer County Medical Society was held in the Memorial Building, Princeton, on the evening of November 16 at 8:15 p. m. There was a large attendance and two visitors, Dr. L. W. Hewit, Bluefield, and Dr. E. L. Gage, Princeton. The application of Dr. Gage was presented and he was elected to membership in the society.

The program consisted of a discussion of "Fads and Fallacies of Endocrinotherapy," by Dr. Albert H. Hoge, and a paper on "Breast Tumors" by Dr. Marshall Sinclair. Both presentations were discussed by Drs. Frank J. Holroyd, R. O. Rogers, Lawrence Pace, O. G. King, and E. L. Gage.

The society acknowledged an invitation from the McDowell County Medical Society to attend their regular Christmas banquet on December 13. Following adjournment, the society was delightfully entertained at the home of Dr. Jim Vermillion.

O. G. KING, *Secretary*.

MONONGALIA COUNTY

An open meeting of the Monongalia County Medical Society, attended by the public, was held in the University Chemistry Building, Morgantown, on the evening of November 7 with Dr. Walter E. Vest, Huntington, president of the Southern Medical Association, as the guest speaker. As chairman of the Public Health Council of West Virginia, Dr. Vest spoke on "A Suggested Health Program." His talk was of great interest to the society members and laymen in attendance.

Preceding the public session, the society met for dinner at six o'clock at the Hotel Morgan and this was followed by a short business session.

CARL F. JOHNSON, *Secretary*.

OHIO COUNTY

Dr. W. James Gardner of the Cleveland Clinic, Cleveland, Ohio, was the guest speaker at the October 20 meeting of the Ohio County Medical

Society, held in the solarium of the Ohio Valley General Hospital. He spoke on "Intracranial Complications of Upper Respiratory Infections." Discussion was opened by Dr. Ivan Fawcett and Dr. R. A. Tomassene.

Dr. Allen F. Voshell, Professor of Orthopedic Surgery, University of Maryland, Baltimore, addressed the November third meeting of the society on "A Discussion of Fracture Fundamentals and Errors." Discussion was led by Dr. J. O. Rankin and Dr. W. P. Sammons. The November 17 meeting of the society was devoted to business matters.

At the next meeting of the society on December first, Dr. Frank H. Lahey of the Lahey Clinic, Boston, will speak on "Various Thyroid States, Their Diagnosis and Management." Members of other county societies are invited to attend.

R. W. LUKENS, *Secretary*.

PARKERSBURG ACADEMY

The City Hospital entertained the members of the Academy of Medicine of Parkersburg in the hospital dining room on the evening of November first. Following dinner a tour of the new addition of the hospital was made.

Dr. Harry A. Towsley of the University of Michigan, Ann Arbor, gave a very interesting program of movies in technicolor of various contagious diseases. Before adjourning a short business meeting was held and Dr. R. C. Starcher was elected to membership. A special meeting was announced for November 7.

A special meeting of the Academy was held at the City Hospital on November 7 with Dr. W. R. Goff, president, presiding. The purpose of the meeting was to consider the report of the D. P. A. Advisory Committee composed of Dr. R. B. Miller, Robert Widmeyer and Dr. A. C. Woofter. The Academy voted to recommend that all indigent patients applying for medical aid be referred to the doctor of their choice for examination, diagnosis and recommended treatment.

Dr. Goff expressed his appreciation to the members of the Academy for their cooperation during his term of office. The next meeting of the Academy will be held at the City Hospital on December 6 for the purpose of electing officers for the coming year.

A. C. WOOFTER, *Secretary*.

POTOMAC VALLEY

The regular meeting of the Potomac Valley Medical Society was held at the Old Homestead Hotel, Burlington, on November 15 at 6:30 o'clock p. m., preceded by a turkey dinner. Dr. V. L. Dyer, president, presided and introduced Mr. A. W. Garnett, director of the State Department of Public Assistance, who was the principal speaker. Mr. Garnett talked on the relation of the doctor to those needing public assistance.

The Board of Censors approved the following for membership: Dr. T. T. Huffman, Keyser; Dr. O. L. Huffman, Sugar Grove; Dr. J. H. Wolverton, Jr., Piedmont; Dr. W. P. Warden, Wardensville, and Dr. C. E. King, Petersburg.

Dr. M. F. Wright, Burlington, was elected president of the society for 1940, succeeding Dr. Dyer. Vice presidents elected were Dr. Robert Bess, Dr. J. F. Easton, Dr. O. V. Brooks, Dr. O. S. Reynolds and Dr. J. B. Grove. Dr. E. A. Courrier was reelected secretary-treasurer. Dr. R. W. Love was elected delegate to the state meeting with Dr. O. V. Brooks as alternate.

E. A. COURRIER, *Secretary*.

DANGERS OF LAXATIVES

The dangers of laxatives in appendicitis are again stressed by J. Shelton Horsley, M.D., John S. Horsley, Jr., M.D., and Guy W. Horsley, M.D., Richmond, Va., who state, in *The Journal of the American Medical Association* for September 30, that "an 'early' appendicitis may with a purgative or an enema become 'late' and gangrenous in twenty-four hours." The use of ice bags and poultices to the abdomen are also responsible in many cases of appendicitis for the development of an abscess or peritonitis.

In discussing the authors' paper Sara M. Jordan, M.D., Boston, declares: "The individual member of the population at large has an obligation in combating his or her disease. We must accept the responsibility of educating the public that when one has a bellyache, one must not attempt to freeze or cook the pain out. It is not to be treated by poultices, plasters or adjustments, pain relieving drugs, food or drink. Purgatives, laxatives or cathartics are not to be taken. If that bellyache lasts for two hours or longer, a competent physician is to be called and given full responsibility. Our profession and the public must be emphatically told that for acute appendicitis there is only one ultimate route, the surgical one, and that delay is dangerous."

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THE PRESS COMMENDS

Seldom has the medical profession of any state received the public and newspaper acclaim which followed the surgical service contributions to Governor Holt and the Department of Public Assistance by approximately one hundred of our Association members on October 14, 1939. A complete explanation of the contributions was made in the November issue of this JOURNAL. Since that time most of the leading daily newspapers of West Virginia have spoken editorially. As the attitude of the public press is of the greatest interest and importance to the profession, we are reprinting herewith a number of these editorials so that our Association members may read them and feel the satisfaction of public approval. The editorials follow:

THE DOCTORS HELP

Having expressed often the belief that America's doctors would make a greater contribution to the care of the indigent than can be accomplished by the interference of politicians, *The Register* derives much satisfaction from a contribution made to the state yesterday by 100 surgeons.

It seems that when the legislature was working out the budget under which the state is now operating, it cut 20 per cent off the appropriation of $250,000 to be spent by the department of public assistance for surgical and medical services.

West Virginia's doctors said as a result of that reduction the care of indigent in the backwoods areas was "bogging down" and they planned a novel method of helping to save the program. They handed to Governor Holt yesterday a stack of credit slips calling on surgeons to furnish more than $70,000 worth of treatment free upon request of the public assistance department. Their idea is that a great many of the doctors who want to help are not available in the remote regions where they are needed most; but their credit slips will help the department to take its funds out of the thickly populated regions and spend them where they are needed most.

Thus they added to the appropriation more than the legislature had cut off.

Each doctor giving this voluntary free service placed a limit upon the amount of help he can give, but they all specified, too, that it would have no effect on the large amount of charity work they already have been doing.

Of course, there are those cynics who will say the doctors are looking after their own interests in thus going to the aid of the indigent to prevent "socialized medicine." But the truth is that a large majority of the doctors always have responded to the call of the penniless sick; it may be that this donation of credit slips merely calls attention to the fact forcibly to public attention. But regardless of the immediate motive behind the action, the doctors and surgeons are meeting the poor more than half way, meeting the state more than half way, and refuting by altruistic action the vote-getting charges made by their attackers.—*Raleigh Register.*

A SERVICE FOR HUMANITY

A gift that will have untold value in improving the health and welfare of hundreds of the state's residents was presented to the West Virginia Department of Public Assistance by members of the medical profession in this state. To enable the department to broaden its program of health and medical assistance to the needy, doctors and specialists throughout the state presented to the department the authorization to draw upon their services for a large amount for the next 21 months.

The purpose of the plan is not to save money for the state but to make up for cuts in the department's medical budget by releasing a large sum in free medical services for usage in the department's regular medical work. Dr. Ray M. Bobbitt, president of the West Virginia State Medical Association, emphasized that these voluntary contributions will in no way reduce the traditional charity work of members of the profession.

The action of the medical profession in voluntarily donating a large amount of their services is an inspiring tribute to the humanitarianism of West Virginia's doctors. Public health and medical and surgical assistance for the needy are of the most vital importance to the welfare and progress of our state. The department of public assistance during the last fiscal year spent $251,145 for medical care in addition to hospitalization and its crippled children's and adult rehabilitation programs. The last legislature, however, reduced that amount by about 20 per cent for the current biennium. This would have meant severe reductions in a great humanitarian project if the members of the medical profession had not taken it upon themselves to supply the

deficiency in the form of free services for the department.

The contributions were entirely voluntary on the part of the doctors and were not presented in the name of the medical association. Kanawha county doctors alone donated one-fifth of the total. As far as we know, the action taken by the state's doctors is unique in this country and marks a great step forward. It gives an eloquent answer to the sneering charges made by many misguided social workers who have advocated government control of the medical profession.

We are proud to extend our congratulations to the medical profession of the state and we are sure that the entire state is extremely proud of the new high record in public service which the profession has established in West Virginia.—*Charleston Mail.*

SURGEONS AID NEEDY

The presentation of credit slips amounting to a five-figure sum to Governor Holt for use by the State Department of Public Assistance by 100 West Virginia surgeons yesterday was an act characteristic of the humanitarian principles which are so evident in the medical profession.

These credit slips will make possible a broader medical service through DPA in areas where such service is most needed. Dr. Ray M. Bobbitt, president of the State Medical Association, who made the presentation, told Governor Holt, that "the doctors will continue their traditional private charity work, in addition to their DPA contributions."

There is no profession that contributes more toward humanity than the medical profession.—*Elkins Inter-Mountain.*

DOCTORS HELP OUT

One of the finest gestures we have noted recently on the part of the medical profession, and one that will bring health and happiness to a host of poor people is the plan just announced of the West Virginia State Medical Society, to turn over to the Department of Public Assistance $70,000 in due bills on the services of 100 leading surgeons of the state.

This huge sum, in due bills, will be a gift from the medical profession of West Virginia, and will be so divided that every section may take advantage of the generous offer of the doctors—and that many people who cannot afford a needed operation under present circumstances will be able to have one.

The Department of Public Assistance has spent approximately $250,000 a year for its medical and surgical needs in the past, but the latest appropriation was only $200,000, despite growing needs.

To make up this deficit, the medical association has donated these due bills, so that all of the amount appropriated can be used in medical cases, especially in rural areas.

This newspaper is delighted to congratulate the entire medical profession of West Virginia on this fine gesture, and trusts that the Department of Public Assistance will make good use of the due bills to relieve suffering and misery of those who are not able to help themselves.—*Beckley Post-Herald.*

TAKING CARE OF THE NEEDY WHEN THEY ARE SICK

Announcement that approximately 100 of West Virginia's leading surgeons and specialists have turned over to the State Department of Public Assistance a batch of "due bills" calling for more than $70,000 worth of their services calls attention to the very serious problem of furnishing medical and surgical services for those needy West Virginians who are not able to pay for these services.

Last year the State Department of Public Assistance spent approximately $250,000 to provide these services for its indigent clients. This year, the amount set aside for that purpose has been reduced to approximately $200,000 on account of the cut in relief appropriations made by the last legislature.

In agreeing to give $70,000 worth of their services to D. P. A. clients, the West Virginia surgeons and specialists expressed the hope that the Department of Public Assistance would not have to pay for any of its surgical services this year and that the amount so saved would be used for general medical service to needy persons, particularly those living in rural and semi-rural counties.

It would be expecting too much to hope that this generous offer by these surgeons and specialists will solve the medical problem which has plagued the Department of Public Assistance from the beginning, but it should undoubtedly go a long way in easing the tension in many counties.

Largely for administrative uniformity, the Department of Public Assistance has adopted a series of rules and regulations governing the granting of medical and hospital care for its clients which very frequently deprive these needy persons of such care even when it may be a matter of life and death. Some way or other, a more realistic handling of

this problem will have to be worked out, including the granting of larger discretion to the local authorities even if this discretion is sometimes subject to abuse.

The medical profession can be helpful in solving this problem if the same generous and intelligent spirit which prompted the offering of $70,000 in free service is focused on the whole medical and hospital program of the Department of Public Assistance.—*Morgantown Post.*

THE AMERICAN WAY

One hundred of the leading surgeons and specialists of West Virginia have, through the West Virginia Medical Association, turned over to the State Department of Public Assistance in excess of $70,000 in due bills. That is, these men offer to contribute their services to this extent to the relief of suffering among the needy.

With this offering as an example, it is the hope of the participating doctors that the department will be able to secure all of its surgical work free of charge this year, in order that public money available may be applied wholly to the rural areas, where need is the greatest.

This is a most commendable undertaking. In the past the department has had available for medical and surgical care approximately $250,000 a year. This year, the amount has been reduced to $200,000, and complaint is made that it is not reaching needy sufferers in many rural sections.

Everybody agrees with the proposition that the truly needy should be provided for. And it is as necessary to provide them with medical attention as it is with food and clothing. Whether or not the money for this phase of relief work is spent to the best advantage, and what sum would be necessary to do the job as it should be done, we have no way of knowing. We do know that the generous offer made by the 100 doctors referred to is representative of the American spirit, and characteristic of the medical profession. It constitutes one of the strongest arguments we can think of against socialized medicine as a modern necessity.—*Hinton News.*

RURAL MEDICAL AID

The gift of some $70,000 worth of credit slips by surgeons of West Virginia placed in the hands of the West Virginia Department of Public Assistance is a good deed which should not go unrecognized.

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of public assistance were reduced by about twenty per cent by the 1939 legislature and as a result the surgeons feel that the rural medical program may meet with serious handicaps.

The free-will offering of credits will release money for use in rural areas where, the surgeons feel, a voluntary contribution such as this will be helpful.

Anything which will go toward making lighter the burdens of a large group of unfortunate people during the coming winter should be welcomed and this step by the state medical and surgical men is of this nature.—*Clarksburg Exponent.*

DOCTORS TO HELP

Last Saturday the West Virginia Medical Association turned over to Governor Holt and the State Department of Public Assistance a contribution of more than $70,000 in due bills on the services of approximately 100 of our leading West Virginia surgeons and specialists.

In the past the DPA has spent $250,000 annually on its indigent medical and surgical program in the state. Due to the decreased appropriation, this amount has been cut to approximately $200,000 with the result that the program is bogging down—particularly in the rural areas.

The purpose of the contribution by the medical association is to make it possible for the Department of Public Assistance to secure all of its surgical service free, so that the amount saved can be applied to rural areas where it is needed most.

It is something that has never been done before and we think it is a splendid gesture on the part of those who represent the state's medical profession. —*Logan Banner.*

DOCTORS CONTRIBUTE

The West Virginia Medical Association has announced that the medical profession has turned over to Gov. Holt and the Department of Public Assistance a contribution of the value of $70,000 in due bills on the services of 100 leading West Virginia surgeons and specialists.

In other words the generous 100 donate to the state, for the benefit of the needy, services of the approximate value of $70,000 to aid the medical and surgical program of the assistance agency.

Since the assistance department has spent $250,000 per year for medical care the gift of service

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*"Treatment of Acute Anterior Urethritis with Silver Picrate," Knight and Shelanski, AMERICAN JOURNAL OF SYPHILIS, GONORRHEA AND VENEREAL DISEASES, Vol. 23, No. 2, pages 201-206, March, 1939.

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does not by any means solve the problem. But to its extent it helps.

The help comes at a time when it is most important for the appropriation for the current year has been cut to $200,000, and the program was bound to bog down, especially in the rural areas.

The medical profession has always been the most altruistic of the callings, probably partly by necessity; since surgeons and physicians are drawn from the same strata which provides other professional men. What has been done here, however, has never been done before, especially as to the method. The public will acknowledge the kindness and be grateful.—*Moundsville Journal.*

MEDICOS CONTRIBUTING

An unusual act of generosity in the interest of human welfare was recorded today when a hundred surgeons of West Virginia turned over to Governor Holt at Charleston a packet of credit slips for the DPA so that, the spokesman explained, the aid to rural relief clients could be expanded. In effect, the surgeons promise to give to the needy in hospitals a specified amount of free surgical service during this fiscal year which will release a substantial sum for medical service to those in the rural areas. The 100 contributing surgeons and specialists may be called upon at any time, Dr. R. M. Bobbitt, Huntington, presenting the gift, said, to the listed sums with the understanding that the state itself utilizes the contributions for surgical care and expands its rural medical program with the money saved. Reduction in the DPA funds by the legislature for the coming year had materially restricted the rural medical program of the DPA, the spokesman explained, and the profession decided on the voluntary contribution plans as the only satisfactory solution.

The governor was quite accurate when he said, accepting the gesture, that it was more than a matter of dollars and cents—that it was a contribution to human health and happiness.

The attitude revealed by the profession in this way is decidedly constructive, as well as revealing a deep sense of responsibility to do their part, even at financial sacrifices, to relieve human suffering. It would have been quite orderly for the profession to have done nothing about the matter—to have said nothing and done nothing. The fact that the situation did appeal to their humanity and that they will voluntarily contribute of their skill and time

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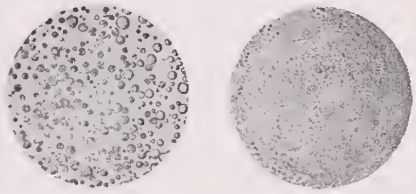

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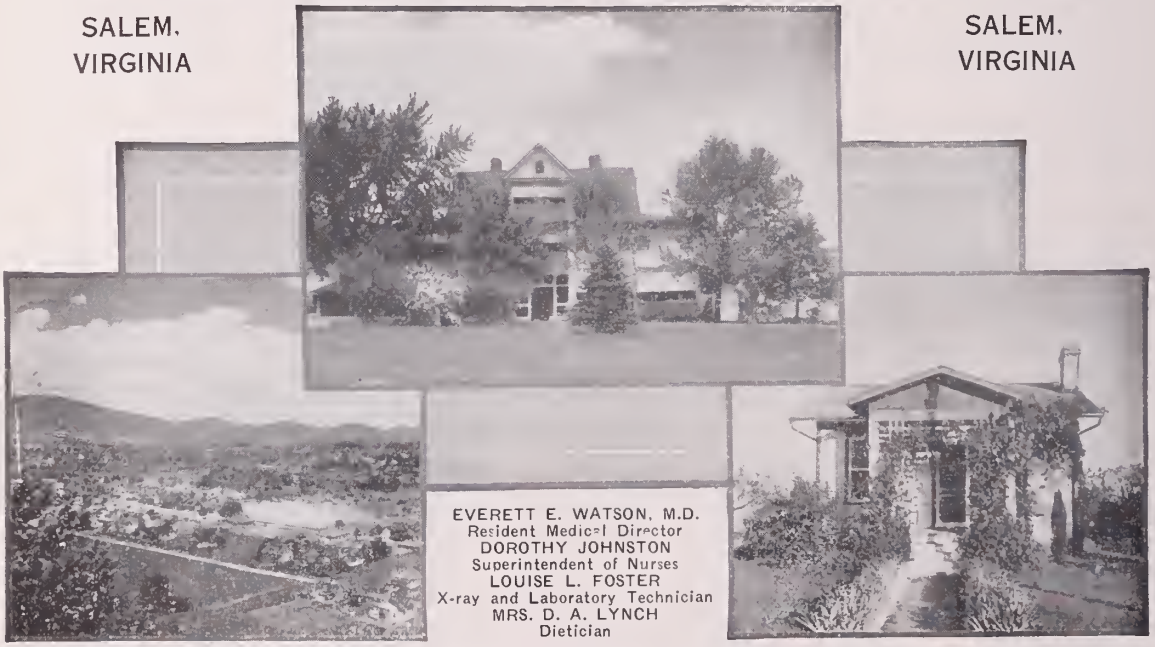

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to alleviation of surgical cases so that the DPA money may go further in the rural areas is a very refreshing attitude, and reflecting high credit on the men who are cooperating.—*Martinsburg Journal.*

RECOVERY FROM HEAD INJURY

Recovery from head injury depends on the presence or absence of structural changes in the tissues of the nervous system and on the victim's mental reaction to the injury, Walter F. Schaller, M.D., San Francisco, declares in *The Journal of the American Medical Association* for November 11.

"Head injuries from warfare and from industrial and automobile accidents," he maintains, "have in recent years occasioned a constantly increasing number of claims for awards, based on veterans' and industrial compensation laws and on public liability.

"The economic importance of a proper understanding of the results of such injuries is of great importance."

Dr. Schaller classifies these injuries as organic (structural) and functional. By a functional injury is meant one in which no injury to the organ itself is evident but changes in the functions of the injured person have taken place since the accident causing the injury.

Organic injuries result from brain pressure by depressed skull fracture, hemorrhage, lacerations, contusions, softenings and complicating infections such as meningitis or abscess. Functional disorders are called post-traumatic (after-injury) psychoneuroses or hysterias, that is, states of purely psychologic origin which develop out of mental complexes following the acute symptoms.

Dr. Schaller contrasts the psychoneurotic patient with the victim of brain concussion, a condition which, he says, is midway between organic and functional disorders. "In concussion," he explains, "the picture is one of a general lowering of physical and psychic functions without the emotional, complaining state; frequently a distinctly happy outlook is present. In concussion there is a natural desire for recovery and return to work, as 30 per cent of such patients continue at work with symptoms, in contrast to but six per cent in the neurotic group.

"The concussion patient often shows amnesia of the accident and a definite period preceding it and

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defects of general memory. Concentration is difficult. The neurotic patient is mentally alert. Those with concussion spontaneously improve, the neurotic tends to regress. The course of a concussion case is not affected by settlement of compensation or litigation features; the neurotic person often recovers on such settlement.

"The outlook for recovery in the psychoneuroses depends on the patient's character and temperament, i.e., his personality. In other words, is the patient so mentally constituted, controlled, and desirous for recovery and work that he can overcome adverse and uncomfortable situations and again take his place as a useful member of society and as a social asset rather than a social liability?"

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Woman's Auxiliary

CABELL COUNTY

The Woman's Auxiliary to the Cabell County Medical Society met at the Governor Cabell Hotel, Huntington, on November 9, 1939. Mrs. Edwin Humphreys, president, was presiding officer and 32 members were present.

Dr. A. E. McClue, state health commissioner, Charleston, addressed the Auxiliary group on the Social Security Act.

Dr. Raymond Sloan of Huntington spoke on conditions among the indigent patient.

Under business considered, the Auxiliary discussed a donation to the Jane Todd Memorial Fund, and made plans for a Christmas party to be held on December 9 for the doctors of the Cabell County Medical Society and their wives, to be held at the Guyan Country Club.

MRS. A. G. RUTHERFORD, *Secretary*.

HARRISON COUNTY

The Woman's Auxiliary to the Harrison County Medical Society met on November 2 at the Hotel Gore, Clarksburg. Mrs. H. H. Esker was the presiding officer and twenty-six members were present. Mrs. V. E. Holcombe, president of the West Virginia State Auxiliary, Charleston, addressed the gathering on Auxiliary work.

The Harrison County Auxiliary will hold their next meeting on December 7 at the Hotel Gore.

MRS. C. F. FISHER, *Secretary*.

KANAWHA COUNTY

The Woman's Auxiliary to the Kanawha Medical Society met on November 14 at the Charleston Woman's Club. Mrs. V. L. Peterson, president, conducted the meeting. There were thirty-eight members present.

The Auxiliary group was addressed by Dr. R. O. Halloran, Charleston, who very interestingly reviewed the book "Skin Deep." Mrs. W. O. McMillan reviewed an article from *Hygeia* entitled "Where Are Your Brains."

The next meeting will be held at the Daniel Boone Hotel and no date was decided upon.

MRS. RALPH E. PENCE, *Secretary*.

LOGAN COUNTY

The Woman's Auxiliary to the Logan County Medical Society met on November 7 at Earling.

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Mrs. Dana Moore presided and twenty-one members were present. Mrs. V. E. Holcombe, Charleston, president of the State Auxiliary was the guest speaker and she addressed the society on the public relations work of the Auxiliary. Mrs. W. V. Wilkerson of Prenter, also spoke before the Logan Auxiliary on the formation of new county Auxiliaries.

Under business considered at the meeting, dues and memberships were reported. The meeting then adjourned for luncheon at the home of Mrs. E. H. Starcher at Earling.

The next meeting will be held at the home of Mrs. J. A. Stumbo on December 5, 1939.

MRS. J. A. STUMBO, *Secretary*.

McDOWELL COUNTY

The Woman's Auxiliary to the McDowell County Medical Society was held on October 11 in Welch at the Appalachian club room. Mrs. J. S. Vermillion, president, presided and fourteen members and two visitors were present. Mrs. E. E. Vermillion of Welch gave some of the highlights of the state meeting which was held in White Sulphur in July, 1939. Mrs. Spangler of Pageton also spoke and chose some excerpts from "What an Auxiliary Member Should Know." Mrs. E. E. Vermillion discussed the matter of a "Student Loan Fund" sponsored by the State Auxiliary. The McDowell Auxiliary voted to donate $10.00 to this fund and add more to it as deemed feasible. A donation of $10.00 was also made to the American Red Cross Fund.

The Woman's Auxiliary to the McDowell County Medical Society met on November 8, in Welch, at the Appalachian club room. Mrs. James Vermillion presided and 18 members and six visitors attended.

Mrs. V. E. Holcombe, Charleston, state president of the Auxiliary spoke in an interesting and instructive manner on some general phases of Auxiliary work.

Miss Helen Smith, social worker from the Department of Public Assistance in McDowell county spoke about the work that is being done among the indigent, blind, incorrigibles, etc.

Mrs. W. V. Wilkerson and Mrs. E. Vermillion also talked of the organization work which is being carried on within the state. Mingo county is reported as being organized by the Auxiliary and

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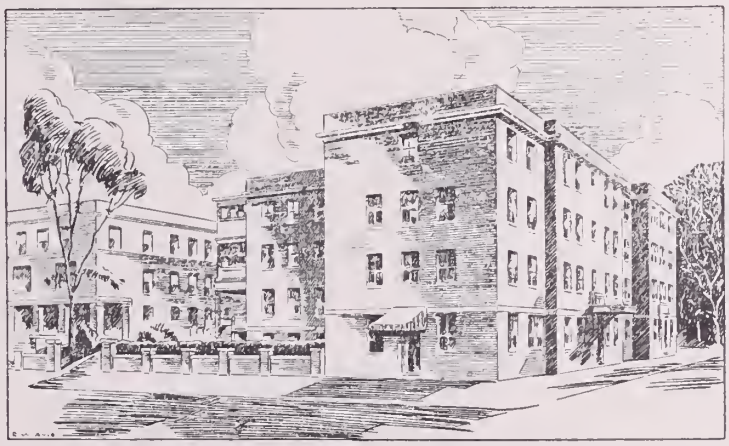

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Wyoming will probably be in the fold by Spring. Several other counties have been contacted in regard to Auxiliary work.

The next meeting will be held December 13 at the same place.

MRS. H. P. EVANS, *Secretary*.

PARKERSBURG ACADEMY

The Woman's Auxiliary to the Parkersburg Academy of Medicine met on November 14 at the Wilmar in Parkersburg. Mrs. Welch England presided over the meeting and twenty-five members were present.

Dr. W. A. Beracqua was the guest of the group and he spoke on "Becoming Acquainted With Social Agencies."

MRS. ARCHBOLD JONES, *Secretary*.

RALEIGH COUNTY

The Woman's Auxiliary to the Raleigh County Medical Society held their October meeting on the thirtieth at the Beckley Hotel, Beckley. Mrs. E. S. DuPuy, president, presided and thirteen members were present. Mrs. L. M. Halloran of Beckley spoke on Auxiliary ideals, and Mrs. DuPuy spoke on the relations of the medical auxiliary to the medical profession. The program included a talk by Mrs. D. C. Ashton of Beckley on "What an Auxiliary Member Should Know."

The date for the next meeting was fixed for November 27 at the Beckley Hotel.

MRS. W. C. MAYS, *Secretary*.

MORE BOYS HAVE ACNE

Boys are more subject to acne than girls and the severity of the eruption is considerably greater, Francis W. Lynch, M.D., St. Paul, Minn., declares in *The Journal of the American Medical Association* for November 11.

From a special examination of 481 students Dr. Lynch concluded that: "There was no relation between body build and the presence of acne.

"It was noted that severe acne was slightly less common in girls with fine hair, but statistical methods indicated that the amount of variation was probably not significant. There was no relation between the color of the hair and the presence of acne."

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With Best Wishes for
The Christmas Season

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